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Analysis from 30.12.2019
Until 05.01.2020
Report: BWP, Productive
Installation: 0020118489
Session: 0010000023094

EarlyWatch Alert - BWP

1 Service Summary



**This EarlyWatch Alert session detected issues that could potentially affect your system.
Take corrective action as soon as possible.**

Alert Overview

Based on the number of requests (> 15.000) in your InfoProvider(s) severe performance problems might exist or are expected.
Mainstream maintenance for your SAP product version has ended or will end in the near future.
Readiness of your system for SAP Remote Service has not been verified by running report RTCCTOOL.
A high number of users has critical authorizations

Note: If you send SAP EarlyWatch Alert data to SAP, this report can also be viewed in the SAP ONE Support Launchpad in an interactive SAP Fiori application [SAP Note 2520319](#). Here is the link to the latest reports for this system: [SAP EarlyWatch Alert Workspace](#)
Specific links to analytical detail pages in SAP EarlyWatch Alert Workspace are included in the respective sections or in this report.
Based on these findings, it is recommended that you perform the following Guided Self-Services.

Guided Self Service	FAQ SAP Note
Security Optimization Service	1484124

For more information about Guided Self-Services, see [SAP Enterprise Support Academy](#).
Register for an Expert-Guided Implementation Session for the Guided Self-Service at [SAP Enterprise Support Academy - Learning Studio - Calendar](#).

Check Overview

Topic Rating	Topic	Subtopic Rating	Subtopic
	SAP System Configuration		
			Database - Maintenance Phases
			SAP Kernel Release
	Performance Overview		
			Performance Evaluation
	SAP System Operating		
			Availability based on Collector Protocols
			Program Errors (ABAP Dumps)
			Update Errors
			Table Reorganization
	Hardware Capacity		
	Database Performance		
			Database Key Performance Indicators
			Locally managed Temp Tablespace
			Database Parameters
			Optimizer Statistics
	Database Administration		
			Space Statistics
			Freespace in Tablespaces
			brconnect -f check (sapdba - check) schedule
			Multibyte Character Sets
	BW Checks		
			BW Administration & Design
			BW Reporting & Planning
			BW Warehouse Management

Check Overview

Topic Rating	Topic	Subtopic Rating	Subtopic
	Database Server Load From Expensive SQL Statements		
			TRANSACTIONAL(02)-BWP: Expensive SQL Statements
			Database Server Load
	Security		
			System Recommendations (ABAP)
			Age of Support Packages
			Default Passwords of Standard Users
			Control of the Automatic Login User SAP*
			Protection of Passwords in Database Connections
			ABAP Password Policy
			Gateway and Message Server Security
			Users with Critical Authorizations
	Software Change Management		
			Number of Changes
	Data Volume Management (DVM)		

Note: All recommendations in this report are based on our general experience. Test them before using them in your production system. Note that EarlyWatch Alert is an automatic service.

Note: If you have any questions about the accuracy of the checks in this report or the correct configuration of the SAP Solution Manager EarlyWatch Alert service, create a customer message under component SV-SMG-SER-EWA.

Note: If you require assistance to resolve concerns about the performance of the system, or if you require a technical analysis of other aspects of your system as highlighted in this report, please contact your customer representative (for example, TQM or ESA). To contact the SAP Enterprise Support advisory team or Customer Interaction Center, please refer to the local contact number specified in [SAP Note 560499](#). For details of how to set the appropriate priority level, see [SAP Note 67739](#).

Performance Indicators for BWP

The following table shows the relevant performance indicators in various system areas.

Area	Indicators	Value	Trend
System Performance	Active Users (>400 steps)	8	
	Avg. Availability per Week	100 %	
	Avg. Response Time in Dialog Task	279 ms	
	Max. Dialog Steps per Hour	7	
	Avg. Response Time at Peak Dialog Hour	203 ms	
	Avg. Response Time in RFC Task	1115 ms	
	Max. Number of RFCs per Hour	6277	
	Avg. RFC Response Time at Peak Hour	746 ms	
Hardware Capacity	Max. CPU Utilization on DB Server	1 %	
	Max. CPU Utilization on Appl. Server	1 %	
Database Performance	Avg. DB Request Time in Dialog Task	89 ms	
	Avg. DB Request Time for RFC	104 ms	
	Avg. DB Request Time in Update Task	337 ms	
Database Space Management	DB Size	215.75 GB	
	DB Growth Last Month	17.45-GB	

2 Landscape

2.1 Products and Components in current Landscape

Product

System	SAP Product	Product Version
BWP~ABAP	SAP NetWeaver	7.4

Main Instances (ABAP or JAVA based)

Related System	Main Instance
BWP~ABAP	Application Server ABAP
BWP~ABAP	Business Intelligence

Databases

Related System	Database System	Database Version	DB ID
BWP~ABAP	ORACLE	12.1.0.2	BWP

2.2 Servers in current Landscape

SAP Application Servers

System	Host	Instance Name	Logical Host	ABAP	JAVA
BWP~ABAP	aocapw06b	aocapw06b_BWP_00	aocapw06b		

DB Servers

Related System	Host	Logical Host (SAPDBHOST)
BWP~ABAP	aocdbw06a	aocdbw06a

2.3 Hardware Configuration

Host Overview

Host	Hardware Manufacturer	Model	CPU Type	CPU MHz	Virtualization	Operating System	CPUs	Cores	Memory in MB
aocapw06b	VMware, Inc.	VMware Virtual Platform	Xeon E5-2690	2900	VMWARE	Red Hat Enterprise Linux 6 (x86_64)	2	2	15951
aocdbw06a	VMware, Inc.	VMware Virtual Platform	Xeon E5-2690	2900	VMWARE	Red Hat Enterprise Linux 6 (x86_64)	2		32110

3 Service Data Quality and Service Readiness



The SAP NetWeaver system BWP is not fully prepared for delivery of future [remote services](#).

Rating	Check Performed
	Service Data Quality
	Service Preparation of BWP

3.1 Service Preparation of BWP

Rating	Check Performed
	Service Preparation Check (RTCCTOOL)
	Hardware Utilization Data

In preparation for SAP services, ensure that connections, collectors, and service tools are up to date. These functionalities are explained in SAP Notes [91488](#) and [1172939](#).

3.1.1 Service Preparation Check (RTCCTOOL)

Report RTCCTOOL was last run on 06.01.2020. During the check, the tool detected issues for which a YELLOW rating was set.

Overall Status	SAP Note	Title	Tool Status	Manual Status
	69455	ST-A/PI 01T_731 Support Package 3		
	539977	ST-PI 740 Support Package 12		

Overall Status	SAP Note	Title	Tool Status	Manual Status
	69455	Addon ST-A/PI 01T_731		
	69455	Proc. after addon impl.		
	69455	Switch on digital content verification		
	69455	Allow Online data collectors		
	539977	Addon ST-PI 740		
	12103	Collectors and TCOLL		
	207223	EWAlert setup		

Recommendation:

ST-A/PI 01T_731 Support Package 3

Addon supportpackage level 3 for ST-A/PI 01T_731 for NetWeaver as of 7.31 [your current level is max. 2 lower than latest. Update is recommended]

From <http://support.sap.com/supporttools> ->ST-A/PI->Support packages-> ST-A/PI 01T_731 download patches up to SAPKITAB9X. For basis >=700 use the Maintenance optimizer to release the download. Upload from frontend to transaction SPAM, define a queue and import.

ST-PI 740 Support Package 12

Addon supportpackage level 12 for ST-PI 740 for basis as of 7.40 [your current level is lower than recommended. Update recommended]

Open <http://support.sap.com/supporttools> ->ST-PI Supportpck.-> ST-PI 740. Add patch SAPK-74012INSTPI (and predecessors if not yet implemented) to download basket. Release basket via Maintenance optimizer. Upload from frontend into transaction SPAM, define a queue and import the queue.

3.1.2 Performance DB (ST03 / ST06)

Analysis of ST06 and history data indicate some problems with SAPOSCOL. Check SAPOSCOL and see SAP Note [1309499](#).

4 Software Configuration for BWP



We have listed recommendations concerning the current software configuration on your system.

Your system's software versions are checked. If known issues with the software versions installed are identified, they are highlighted.

4.1 SAP Application Release - Maintenance Phases

SAP Product Version	End of Mainstream Maintenance	Status
SAP NETWEAVER 7.4	31.12.2020	

Your system BWP is running on SAP NETWEAVER 7.4. This release will be in mainstream maintenance until 31.12.2020. SAP does not offer extended maintenance or priority-one support for SAP NETWEAVER 7.4.

Recommendation: We recommend that you upgrade your system. For restrictions that apply to your system during customer-specific maintenance, see support.sap.com/maintenance.

For SAP releases and SAP BusinessObjects releases based on SAP NetWeaver, SAP offers customer-specific maintenance after the end of mainstream maintenance. For more information about the maintenance phases offered for SAP and SAP BusinessObjects software, see support.sap.com/maintenance.

In October 2014, SAP announced a maintenance extension for SAP Business Suite 7 core application releases to 2025. If you are running a relevant release, see SAP Note [1648480](https://support.sap.com/note/1648480) for more details and applicable restrictions.

4.2 Support Package Maintenance - ABAP

The following table shows an overview of currently installed software components.

Support Packages

Software Component	Version	Patch Level	Latest Avail. Patch Level	Support Package	Component Description
BI_CONT	757	22	24	SAPK-75722INBICONT	BI CONT SAP NW 7.40 ADDON 7.57

Support Packages

Software Component	Version	Patch Level	Latest Avail. Patch Level	Support Package	Component Description
PI_BASIS	740	22	22	SAPK-74022INPIBASIS	Basis Plug-In 7.40
SAP_ABA	740	22	22	SAPKA74022	SAP Anwendungsbasis 7.40
SAP_BASIS	740	22	22	SAPKB74022	SAP Basis Component 7.40
SAP_BW	740	22	22	SAPKW74022	SAP Business Warehouse 7.40
SAP_GWFND	740	22	22	SAPK-74022INSAPGWFND	SAP NetWeaver Gateway Foundation 7.40
SAP_UI	752	7	8	SAPK-75207INSAPUI	User Interface Technology 7.50
ST-A/PI	01T_731	2	3	SAPKITAB9W	ST-A/PI 01T_731
ST-PI	740	11	12	SAPK-74011INSTPI	Solution Tools Plugin 740

4.3 Database - Maintenance Phases

Database Version	End of Standard Vendor Support*	End of Extended Vendor Support*	Status	SAP Note
Oracle Database 12g Release 1	31.07.2019	31.07.2021		1174136

* Maintenance phases and duration for the DB version are defined by the vendor. Naming of the phases and required additional support contracts differ depending on the vendor. Support can be restricted to specific patch levels by the vendor or by SAP. Check in the referenced SAP Note(s) whether your SAP system requires a specific patch release to guarantee support for your database version.

The support status you receive in this report regarding your Oracle database version takes only the major release support dates into account and not whether the individual patch set level is outdated in terms of Oracle patch support. For this reason, verify in the corresponding patch set SAP Note whether the patch set you are currently using is still in the Oracle patch provisioning mode.

For more information, see the "Oracle Release" section of the "Database" section.

Recommendation: Standard vendor support for your database version has already ended / will end in the near future. Consider ordering extended vendor support from your database vendor or upgrading to a higher database version.

4.4 Operating System(s) - Maintenance Phases

Host	Operating System	End of Standard Vendor Support*	End of Extended Vendor Support*	Comment	Status	SAP Note
2 Hosts	Red Hat Enterprise Linux 6 (x86_64)	30.11.2020	30.06.2024	Limited (ELS)		936887

* Maintenance phases and duration for the operating system version are defined by the vendor. Naming of the phases and required additional support contracts differ depending on the vendor. Support can be restricted to specific patch levels by the vendor or by SAP. Check in the referenced SAP Note(s) whether your SAP system requires a specific patch release to guarantee support for your operating system version.

4.5 SAP Kernel Release

The following table lists all information about your SAP kernel(s) currently in use.

Instance(s)	SAP Kernel Release	Patch Level	Age in Months	OS Family
aocapw06b_BWP_00	749	701	7	Linux (x86_64)

4.5.1 Kernel out of date

Your current SAP kernel release is probably not up to date.

Recommendation: Make sure that you are using the recommended SAP kernel together with the latest Support Package stack for your product.

4.5.2 Additional Remarks

SAP releases Support Package stacks (including SAP kernel patches) on a regular basis for most products (generally 2–4 times a year). We recommend that you base your software maintenance strategy on these stacks.

You should only consider using a more recent SAP kernel patch than that shipped with the latest Support Package Stack for your product if specific errors occur.

For more information, see SAP Service Marketplace at

<https://support.sap.com/software/patches/stacks.html> (SAP Support Package Stack information) and <https://launchpad.support.sap.com/#/softwarecenter/support/index> (Support Packages & patch information).

For each patch there is an SAP Note in which all known regressions for this level are listed. Find it using the keyword [KRNL749PL701](#) in the SAP Note search. For detailed information, see SAP Note [1802333](#) - Finding information about regressions in the SAP kernel.

5 Hardware Capacity



We have checked your system for potential CPU or memory bottlenecks and found that the hardware is sufficient for the current workload.

Note: Hardware capacity evaluation is based on hosts for which data is at least partially available.

5.1 Overview System BWP

General

This analysis focuses on the workload during the peak working hours (**9-11, 13**) and is based on the hourly averages collected by SAPOSCOL. For information about the definition of peak working hours, see SAP Note [1251291](#).

CPU

If the average CPU load exceeds **75%**, temporary CPU bottlenecks are likely to occur. An average CPU load of more than **90%** is a strong indicator of a CPU bottleneck.

Memory

If your hardware cannot handle the maximum memory consumption, this causes a memory bottleneck in your SAP system that can impair performance. The paging rating depends on the ratio of paging activity to physical memory. A ratio exceeding **25%** indicates high memory usage (if Java has been detected **0%**) and values above **50%** (Java **10%**) demonstrate a main memory bottleneck.

Server	Max. CPU load [%]	Date	Rating	RAM [MB]	Max. Paging [% of RAM]	Date	Rating	Analysis Start	Analysis End
aocdbw06a	1	30.12.2019		32.110	0			30.12.2019	05.01.2020
aocapw06b	1	30.12.2019		15.951	0			30.12.2019	05.01.2020

Note: For virtualization or IaaS scenarios (for example, IBM PowerVM, VMware, Amazon AWS, ...) it is possible that the CPU rating for some hosts is YELLOW or RED, even though the utilization value is quite low. In this case, the relevant host could not use maximum usable capacity due to a resource shortage within the virtualized infrastructure (for example, IBM PowerVM: Shared Pool CPU utilization).

6 Workload Overview BWP

6.1 Workload By Users

User activity is measured in the workload monitor. Only users of at least medium activity are counted as 'active users'.

Users	Low Activity	Medium Activity	High Activity	Total Users
dialog steps per week	1 to 399	400 to 4799	4800 or more	
measured in system	36	4	4	44

6.2 Workload By Task Types

This chart displays the main task types and indicates how their workload is distributed in the system.

Task Type	Response Time[s]	DB Time[s]	CPU Time[s]	GUI Time in s
RFC	133005	11728	3264	0
Batch	65698	32586	10985	0
Others	8099	1317	1317	18

The chart below lists the top task types in terms of total response time in s.

6.3 Top Applications

This table lists the top applications of the RFC task type. The unit of measure is milliseconds [ms] for average time and seconds [s] for total time.

RFC Profile

Initial System	Initial Action	Total Response Time[s]	% of Total Load	Steps	Avg. Resp. Time[ms]	Avg. Proc. Time[ms]	Avg. CPU Time[ms]	Avg. DB Time[ms]
BWP/aocapw06b_BWP_00	BI_WRITE_PROT_TO_APPLLOG	68213	33.0	10499	6497	6199	31	297
BWP/aocapw06b_BWP_00	BIREQU_0VMXERR6ZVG2E2ACTIAME7CR7	3734	1.8	3260	1145	739	62	72
BWP/aocapw06b_BWP_00	BIREQU_EAQXA5RYAO6G4V3CT3B2TMWCZ	3671	1.8	3258	1127	726	63	73
BWP/aocapw06b_BWP_00	/BDL/TASK_PROCESSOR	3666	1.8	135	27153	3340	1004	6742
BWP/aocapw06b_BWP_00	BIREQU_8X83ZO6IXYAUQZKHWTNICG577	3649	1.8	3274	1114	717	63	73
BWP/aocapw06b_BWP_00	BIREQU_ATLCOWTUL1YLV0089LFY60Q4Z	3416	1.7	2206	1548	1091	91	109
BWP/aocapw06b_BWP_00	BIREQU_1A20IQXZVTL8A92NYFIKVXTG3	3363	1.6	2228	1509	1052	91	107
SMP/aocsls06a_SMP_00	EFWK RESOURCE MANAGER	1963	0.9	5055	388	265	96	113
BWP/aocapw06b_BWP_00	BI_PROCESS_ODSACTIVAT	1692	0.8	7298	232	131	35	100
BWP/aocapw06b_BWP_00	BI_PROCESS_LOADING	883	0.4	3734	237	140	11	25

This table lists the top applications of the Batch task type. The unit of measure is milliseconds [ms] for average time and seconds [s] for total time.

Jobs Profile

Report	Response Time[s]	% of Total Load	Steps	CPU Time[s]	DB Time[s]
RSPROCESS	21571	10.4	2618	3242	5832
RSAL_BATCH_TOOL_DISPATCHING	15534	7.5	168	702	13877
RSBATCH_EXECUTE_PROZESS	15279	7.4	3519	4835	7341
SBIE0001	2801	1.4	197	747	1970
RBDAPP01	2096	1.0	2402	174	285
SWNC_TCOLL_STARTER	1682	0.8	2846	208	1048
(BATCH)	1350	0.7	37356	330	654
RSBTCRTE	1068	0.5	25138	210	428
RSDBAJOB	1003	0.5	16	1	2
/BDL/TASK_SCHEDULER	665	0.3	168	6	12

7 Performance Overview BWP



The performance of your system was analyzed with respect to average response time and total workload. No problems that could significantly impair system performance were detected.

Rating	Check
	Performance Evaluation

7.1 Performance Evaluation

The following table shows the average response times of task types running in dialog work processes. Data is from Solution Manager BW.

Dialog WP related task types

Task Type	Steps	Avg. Resp. Time[ms]	Avg. CPU Time[ms]	Avg. Wait Time[ms]	Avg. DB Time[ms]	Avg. GUI Time[ms]
RFC	118263	1125	28	57	99	0
Dialog	133	279	44	0	89	132
HTTP(S)	1	8	0	0	4	0

The measured times are compared against reference times to provide a rating.

- If the task type is not listed in the "Task Type Overview" table in the "Workload Overview BWP" section, the task type is not included in the evaluation.

- DIALOG, RFC, and HTTP(S) are considered to be related to the end user's dialog activity.

The table below indicates that performance problems are anticipated for tasks rated YELLOW or RED.

Ratings

Task	Steps	Application Server Performance	Database Server Performance
RFC	118263		

Time Profile Rating

Rating	Task	Time	Steps	Avg. Response Time[ms]	Avg. CPU Time[ms]	Avg. Database Time[ms]
	RFC	14-15	3.628	2.561	23	765

Reference Times

Task	Ref. for Avg. Response Time[ms] - Yellow Rating	Ref. for Avg. Response Time[ms] - Red Rating	Ref. for Avg. DB time[ms] - Yellow Rating	Ref. for Avg. DB time[ms] - Red Rating
RFC	2.400	3.600	1.200	1.800

The chart below displays the time profile for the RFC task type.

8 Trend Analysis for BWP



The performance of your system was analyzed with respect to the trend of response times per system and per application. We found no major problems that could affect system performance.

Rating table

Rating	Check	Description
	History of response time of BWP	The long-term or short-term analysis of the response time does not show a critical trend
	Application profile of BWP	The long-term analysis of applications does not show a critical trend

In the following, we analyzed the trend within the following time frames:

Short term: From calendar week 50/2019 to 01/2020

Long term: From calendar week 28/2019 to 01/2020

8.1 History of Response Time of BWP

We analyzed the growth of the average response time within this system. The long-term is %/year and short-term is %/year. This is not critical and no action is required.

The graphs below show the time profiles of the following task types: RFC.

In the following, we analyzed the trend within the following time frames:

Short term: From calendar week 50/2019 to 01/2020

Long term: From calendar week 28/2019 to 01/2020

The table below shows the long-term and short-term growth in average response time extrapolated to a year.

Growth Extrapolated To A Year

Task Type	Long Term Growth (%/year)	Trend	Rating	Short Term Growth (%/year)	Trend	Rating
ALL	-3,3			-166,3		
RFC	4,4			-45,7		

The table below shows the long-term and short-term weekly average growth in the average response time.

Average Growth

Task Type	Long Term Growth (%/week)	Trend	Rating	Short Term Growth (%/week)	Trend	Rating
ALL	-0,1			-3,2		
RFC	0,1			-0,9		

Rating Legend

	The trend is only for information
	The trend is not critical
	The trend is critical
	The trend is very critical

8.2 Application profile

In the following, we analyzed the trend within the following time frames:

Short term: From calendar week 50/2019 to 01/2020

Long term: From calendar week 28/2019 to 01/2020

The table below shows the time profile of the top applications by total workload during the analyzed period.

Top Applications by Response Time

Task Type	Application	Total Resp. Time in s	% of Total Load	Avg. Resp. Time in ms	Long Term Growth (%/year)	Short Term Growth (%/year)	Avg. DB Time in ms	Avg. CPU Time in ms
RF C	BWP/aocapw06b_BWP_00 BI_WRITE_PROT_TO_A PPLLOG	1639744	66	6496	0,2	-5,5	300	31
RF C	SMP/aocsls06a_SMP_00 EFWK RESOURCE MANAGER	53146	2	435	-7,9	-193,7	146	99
RF C	BWP/aocapw06b_BWP_00 BI_PROCESS_ODSACTI VAT	39586	2	189	25,8	-274,9	79	31
RF C	BWP/aocapw06b_BWP_00 /BDL/TASK_PROCESSO R	37689	2	26616	18,9	-431,0	6778	1074

Top Applications by Response Time

Task Type	Application	Total Resp. Time in s	% of Total Load	Avg. Resp. Time in ms	Long Term Growth (%/year)	Short Term Growth (%/year)	Avg. DB Time in ms	Avg. CPU Time in ms
RF C	BWP/aocapw06b_BWP_00 BI_PROCESS_LOADING	26359	1	240	-13,4	63,5	28	11
RF C	SMX/sap-dev23_SMX_01 SAP_MW_COCKPIT_COLLECTOR_001	16047	1	360	2,2	-43,7	1	2
RF C	BWP/aocapw06b_BWP_00 SAP_COLLECTOR_PERF_MON_SWNCCOLL	15222	1	1220	-2,0	-279,5	490	740
RF C	BWP/aocapw06b_BWP_00 BIREQU_AKR0P9WPDD1OB6J6PB2VX9IDV	14255	1	6699	0,0	0,0	111	93
RF C	SMP/aocsls06a_SMP_00 TMWFLOW/SCMA_TRORDER_IMPORT/000	12259	0	517	4,7	183,3	7	5
RF C	BWP/aocapw06b_BWP_00 BIREQU_C7C980OJ7FXCXF524LESK7W43	6569	0	3452	0,0	0,0	114	97
RF C	BWP/aocapw06b_BWP_00 BIREQU_1TCJ5J63KOGT0H2E4BR58YJBN	5803	0	3187	0,0	0,0	112	96
RF C	BWP/aocapw06b_BWP_00 BIREQU_7H1PILOD2SLVGN43TP5YM5QAB	5694	0	2949	0,0	0,0	113	99
RF C	SMP/aocsls06a_SMP_00 SM:SELDIAGNOSIS	4132	0	1250	42,6	-213,0	681	456
RF C	BWP/aocapw06b_BWP_00 BIREQU_DR82N9RYQX11CX075ELF0UO9F	3974	0	1198	0,0	0,0	76	63
RF C	BWP/aocapw06b_BWP_00 BIREQU_2Q8078J58N35BZN0TIVGTY6HF	3938	0	1188	0,0	0,0	75	60
RF C	BWP/aocapw06b_BWP_00 BIREQU_EAQXA5RYAO6G4V3CT3B2TMWCZ	3671	0	1127	0,0	0,0	73	63
RF C	BWP/aocapw06b_BWP_00 BIREQU_5FMC01OXBPKGQN84SQ63BX2KZ	3660	0	1125	0,0	0,0	76	63
RF C	BWP/aocapw06b_BWP_00 BIREQU_8X83ZO6IXYAUQZKHWTNICG577	3649	0	1114	0,0	0,0	73	63
RF C	BWP/aocapw06b_BWP_00 BIREQU_079Y7CETH2PD1HNLGQ8BUTZDF	3580	0	1109	0,0	0,0	74	65
RF C	BWP/aocapw06b_BWP_00 BIREQU_3WHXEP6QSMC1BC4L08UWL2CSZ	3564	0	1105	0,0	0,0	75	63

The graph below shows how the average response time of the top five applications varies over time. Data is normalized to 100% equaling the average value.

9 SAP System Operating BWP



Your system was analyzed with respect to daily operation problems. We did not detect any major problems that could affect the operation of your SAP System.

9.1 Availability based on Collector Protocols

A value of 100% means that the collector was available all day. "Available" in the context of this report means that at least one SAP instance was running. If the SAP collector was not running correctly, the values in the table and graphics may be incorrect.

To check these logs, call transaction ST03N (expert mode) and choose "Collector and Performance DB -> Performance Monitor Collector -> Log".

This check is based on the logs for job COLLECTOR_FOR_PERFORMANCEMONITOR that runs every hour.

The job does NOT check availability; it carries out only general system tasks such as collecting and aggregating SAP performance data for all servers/instances. The log does not contain any direct information about availability; it contains only information about the status of the hourly statistical data collection.

As of SAP Basis 6.40, system availability information is available in the CCMS (Computing Center Management System) of an SAP System, in Service Level Reporting of SAP Solution Manager.

This function is provided by the relevant Solution Manager Support Packages as an advanced development. For more information, refer to SAP Note 944496, which also lists the prerequisites that must be fulfilled before implementation can take place."

9.2 Update Errors

In a system running under normal conditions, only a small number of update errors should occur. To set the rating for this check, the number of active users is also taken into consideration.

We did not detect any problems.

9.3 Table Reorganization

The largest tables and/or rapidly growing tables of system BWP were checked. No standard SAP recommendations for the applicable data volume management were found.

9.4 Program Errors (ABAP Dumps)

No ABAP dumps have been recorded in your system in the period analyzed. ABAP dumps are generally deleted after 7 days by default. To view the ABAP dumps in your system, call transaction ST22 and choose Selection. Then select a timeframe. It is important that you monitor ABAP dumps using transaction ST22 on a regular basis. If ABAP dumps occur, you should determine the cause as soon as possible.

Based on our analysis, we expect no serious problems at the moment.

10 Security



**Critical security issues were found in your system.
See the information in the following sections.**

Rating	Check
	System Recommendations (ABAP)
	Age of Support Packages
	Default Passwords of Standard Users
	Control of the Automatic Login User SAP*
	Protection of Passwords in Database Connections
	ABAP Password Policy
	Gateway and Message Server Security
	Users with Critical Authorizations

10.1 ABAP Stack of BWP

10.1.1 Age of Support Packages

The following table shows the current status, the final assembly date at SAP, and the implementation date of selected key software components that are installed in the system.

Software Component	Release	Support Package	Final assembly date	Age of final assembly date in months	Support Package import date	Age of SP import date in months
BI_CONT	757	22	05.06.2019	7	13.12.2019	1
SAP_ABA	740	22	28.06.2019	6	13.12.2019	1
SAP_BASIS	740	22	28.06.2019	6	13.12.2019	1
SAP_GWFND	740	22	28.06.2019	6	13.12.2019	1

Security fixes for SAP NetWeaver-based products are delivered with the support packages of these products. For all SAP Notes with high or very high priority, SAP provides this service for the support packages from the last 24 months (refer to <https://support.sap.com/securitynotes> for further details).

Recommendation: Run a support package update at least once a year (refer to <https://support.sap.com/en/my-support/software-downloads/support-package-stacks.html> for further details) and evaluate SAP Security Notes once a month in relation to the monthly SAP Security Patch Day.

10.1.2 ABAP Password Policy

If password login is allowed for specific instances only, the password policy is checked only for these instances.

10.1.3 Users with Critical Authorizations

For more information about the following check results, see SAP Note [863362](#).

Recommendation: Depending on your environment, review your authorization concept and use the Profile Generator (transaction PFCG) to correct roles and authorizations. You can use the User Information System (transaction SUIM) to check the results. For each check, you can review the roles or profiles that include the authorization objects listed in the corresponding section.

10.1.3.1 Super User Accounts

Users with authorization profile SAP_ALL have full access to the system. There should be a minimum of such users. The number of users with this authorization profile is stated for each client.

Client	No. of Users Having This Authorization	No. of Valid Users	Rating
000	14	16	
001	1	8	
066	1	2	
100	9	647	

Authorization profile:

SAP_ALL

11 Software Change and Transport Management of BWP



No critical software change management issues were found in your system.

11.1 SAP Netweaver Application Server ABAP of BWP

Rating	Check Performed
	Number of Changes

11.1.1 Number of Changes

Performing changes is an important cost driver for the IT department. It is only acceptable to make a large number of software and configuration changes in exceptional situations, such as during go-live for an implementation project.
No changes have been reported for the ABAP stack in the last week.

12 Database Performance



We have detected some problems with the settings of the database. These settings may affect performance.

Rating	Check
	Database Key Performance Indicators
	Locally managed Temp Tablespace
	Database Parameters
	Optimizer Statistics

12.1 Load per User

The following table provides an overview of the load caused by different database users. The data in the table is based on samples of session activity in the system over the past seven days.

Load per User

User Name	Load (%)
%GDPR%	21
SAPCOCKPIT	2
SAPSR3	77

12.2 I/O performance reported by Oracle statistics

Important I/O Performance Counters

Performance-Indicators	Description	Observed-Value	Reference-Value
db file sequential read	Indicates the average time in ms a session is waiting for a read request from disk to complete.	2	<=15
log file sync	Indicates the average time in ms a session is waiting for a Commit (or a Rollback).	3	<=15

Oracle stores wait situations that have occurred since the last database startup in the Dynamic Performance View V\$SYSTEM_EVENT. The I/O related events that have the most influence on the performance of your system are listed in the table above, together with threshold values derived from our experience.

12.3 Performance History

This section shows where DB time has been spent in the past. This helps to compare DB load at different times and is a basis for target-oriented tuning. By having information on the most time-consuming areas in the database, these areas can be tuned carefully to maximize DB time savings. Depending on where DB time is mainly spent, different tuning activities will need to be performed. Further information on wait events and possible follow-up actions for specific wait events can be found in [SAP Note 619188](#).

DB Time

The following diagram shows where DB time was spent during the past 7 days.

The following diagram shows the distribution of the DB time per hour for the past 7 days.

IO-related wait events usually take up the most DB time. Details for those wait events are shown in the following diagrams.

A higher than usual total time for a wait event can be due to more waits, an increase in the average wait time, or both. To reduce the absolute time spent on a wait event, either the number of waits or the average time per wait needs to be reduced. The direction to go can be found by correlating the total time spent for the event per hour with the averages and waits.

Top Segments by Different Criteria

A significant part of the DB time is usually spent reading data from the data files (db file sequential read, db file scattered read) and processing data that already exists in the memory (CPU). The top objects with respect to physical and logical reads are therefore listed in the following diagrams. Statements on these objects usually offer the greatest potential for reducing IO or CPU time. CPU time is also spent on activities other than data access in the main memory ([SAP Note 712624](#)), but data access is usually the dominant part.

Further segment statistics are listed in the following diagrams for information purposes. They do not need to be directly related to a wait event, but can indicate why specific wait events are having a significant impact.

Example: If considerable DB time is spent on "enq: TX – row lock contention", this can have two reasons: a large number of waits or long-running waits. Statements on segments with a large number of waits are a potential root cause. The segments with a large number of waits are therefore listed here. Segments with few, but long-running waits can also be a root cause but there are no segment statistics for the duration of the waits. Segments with the most waits can potentially, but do not have to be the root cause.

Database KPIs

The following section lists performance indicators, for information purposes. When the database time history is being analyzed, these performance indicators can help to pinpoint potential reasons for an increase in the database time. In other words, they support the time-driven analysis.

12.4 Database Parameters for BWP

This section lists parameter alterations to be made on the Oracle database. The recommendations are based mainly on [SAP Note 1888485](#). Parameters that can have multiple values such as "_fix_control" or "event" can appear several times in the tables below. Set these parameters in one step, as described in [SAP Note 1289199](#); [SAP Note 1888485](#) also contains links to information on different parameters.

12.4.1 Database Parameters

The following parameters are currently not set. They need to be added with the recommended value.

Parameters to be added

Parameter	Recommended Value
_in_memory_undo	FALSE

The following parameters currently have different values than recommended. They need to be changed to the recommended value.

Parameters to be changed

Parameter	Current Value	Recommended Value
db_create_file_dest	+BWP_DATA1	+DATA
db_create_online_log_dest_1	+BWP_DATA1	+DATA
db_create_online_log_dest_2	Null	+RECO

The following parameters are set although there is no SAP recommendation given for them. Therefore, they should be deleted if there is no special reason to keep them set explicitly.

Parameters likely to be deleted after checking

Parameter	Current Value
_ktb_debug_flags	8
_optimizer_batch_table_access_by_rowid	FALSE
db_recovery_file_dest_size	31457280000
optimizer_adaptive_features	FALSE
spfile	+BWP_DATA1/bwp/spfilebwp.ora_1463210446869

The following parameters need to be checked manually. The prerequisites for if and how they need to be set cannot be checked automatically, or the parameters are not recommended in the Note but set in the system. They are listed here for documentation purposes and further manual checking. The "Set" column shows if the parameter is currently set in the parameter file.

Parameters to be checked manually

Parameter	Current Value	Set
_advanced_index_compression_options	16	Yes
_enable_numa_support	Null	No
_fix_control (23738304)	23738304:ON	Yes
_px_numa_support_enabled	Null	No
audit_sys_operations	TRUE	No
control_files	+RECO/bwp/cntrlbwp.dbf, ...	Yes
control_management_pack_access	DIAGNOSTIC+TUNING	No
db_cache_size	4697620480	Yes
enable_pluggable_database	FALSE	No
heat_map	ON	Yes
inmemory_clause_default	Null	No
inmemory_max_populate_servers	0	No
inmemory_size	0	No
local_listener	LISTENER_BWP	Yes
log_buffer	13312000	No
os_authent_prefix	ops\$	No
os_roles	FALSE	No
parallel_max_servers	20	Yes
pga_aggregate_target	6872367104	Yes
processes	400	Yes
remote_login_passwordfile	EXCLUSIVE	No
sessions	800	Yes
shared_pool_size	3154116608	Yes
sql92_security	FALSE	No
undo_retention	43200	Yes

Parameters to be checked manually

Parameter	Current Value	Set
use_large_pages	TRUE	No

The following parameters were changed dynamically since startup. They are listed here for documentation purposes so no recommendation is given for them.

Parameters dynamically changed since startup

Parameter	Current Value
cursor_sharing	Null

12.5 System Performance

12.5.1 DB Time History

12.5.1.1 Instance: Total

The graph below shows the components of the database time history.

12.5.2 Database Load analysis ST04 Data

12.5.2.1 ST04 Daily Data Total

Number of user calls per day.

Daily average of buffer quality.

Number of logical reads per day.

Number of physical reads per day.

Number of full table scans per day.

Daily average of reads per user call.

13 Database Administration



In the checks performed, no problems regarding the administration of your database were found.

Rating	Check
	Space Statistics
	Freespace in Tablespaces
	brconnect -f check (sapdba -check) schedule
	Multibyte Character Sets

13.1 Mini Checks

This section contains a list of checks executed on the system that do not return the expected value. Due to a number of factors, we cannot rate this check automatically.

Recommendation: For more information about each mini-check, their expected values, potential reasons why the system value is different, and solutions, see [SAP Note 1615380](#).

Name	Value
DDIC statistics creation	2016-05-14 01:26:08
Files with AUTOEXTEND increment > 100 M	7
Fixed objects statistics creation	2016-05-14 01:28:54
Log switches within less than 1 minute	62
Redo log mirroring not by Oracle	Yes
Segments not pre-calculated for DBA_SEGMENTS	2183

Name	Value
Snapshot Retention (days)	8
Tables with > 100 partitions	2
UNUSABLE indexes	2

13.2 Space Statistics

13.2.1 Database Growth

The following figure shows the development of the size of your database in GB.

An overview of the freespace development of your database in GB is shown here.

The following table shows you the current size and the monthly growth of your database in GB.

Date	Current Size in GB	Monthly Growth in GB
01.02.2019	215,76	3,40
01.03.2019	218,02	2,26
01.04.2019	218,33	0,31
01.05.2019	216,21	-2,12
01.06.2019	221,60	5,39
01.07.2019	228,12	6,52
01.08.2019	229,74	1,62
01.09.2019	231,73	1,99
01.10.2019	231,95	0,22
01.11.2019	228,98	-2,97
01.12.2019	233,20	4,22

13.2.2 Tablespace Freespace overview

The following table shows the overview of free space for table space.

Tablespace Freespace overview

Tablespace	Max Free Space in KB	Total Free Space in KB	Number of Fragments	Space critical objects	Extent critical objects
PSAPSR3	24727.00	171924.50	14517	0	0
PSAPSR3740	23600.00	47175.39	14	0	0
PSAPSR3USR	499.00	499.00	1	0	0
PSAPUNDO	4800.00	23527.15	478	0	0
SYSAUX	2048.00	2614.01	249	0	0
SYSTEM	2800.00	6103.06	72	0	0
PSAPTEMP	0.00	0.00	0	0	0

13.2.3 Top 10 Tables

The following table shows you the top 10 tables based on total size.

Table_name	Total size in GB	Table size in GB	Index size in GB	Lob size in GB	Percent of total Size	Cumulated percentage
/BIC/AZFISL_0100	16.53	12.38	4.15	0.00	7.52	7.52
BALDAT	10.81	9.37	1.44	0.00	4.92	12.44
/BIC/AZPU_O3200	8.93	5.02	3.91	0.00	4.06	16.50
/BIC/EZPU_C01	5.82	3.38	2.44	0.00	2.65	19.15
RSBATCHDATA	5.64	4.73	0.90	0.00	2.57	21.71
/BI0/SPSTNG_SEQ	5.38	2.19	3.18	0.00	2.45	24.16
REPOLOAD	4.43	0.27	0.01	4.15	2.02	26.17
EDI40	4.23	4.14	0.09	0.00	1.92	28.10
/BI0/E0TCT_C02	4.19	2.02	2.17	0.00	1.91	30.00
RSMONMESS	4.07	0.90	3.17	0.00	1.85	31.85

N.B. If a graph line drops to zero, there is no data available for that date.

13.2.4 Top 10 Segments

The following table shows you the top 10 segments based on size.

Top 10 Segments based on size

Segment name	Segment type	Tablespace	Size inGB	Extents	Table	Column
/BIC/AZFISL_0100	TABLE	PSAPSR3	11.75	372		
BALDAT	TABLE	PSAPSR3	8.70	518		
/BIC/AZPU_03200	TABLE	PSAPSR3	4.77	262		
RSBATCHDATA	TABLE	PSAPSR3	4.36	255		
EDI40	TABLE	PSAPSR3	4.11	254		
/BIC/AZFISL_0100~0	INDEX	PSAPSR3	3.88	245		
/BIC/AZPU_03200~0	INDEX	PSAPSR3	3.07	241		
SYS_LOB0064639396C00013\$\$	LOBSEGMENT	PSAPSR3740X	2.18	155		
/BIO/SPSTNG_SEQ	TABLE	PSAPSR3	2.13	222		
/BIO/SPSTNG_SEQ~0	INDEX	PSAPSR3	2.07	224		

The following table shows you the top 10 segments based on extents.

Top 10 Segments based on extents

Segment name	Segment type	Tablespace	Size inGB	Extents	Table	Column
BALDAT	TABLE	PSAPSR3	8.70	518		
/BIC/AZFISL_0100	TABLE	PSAPSR3	11.75	372		
GVD_OBJECT_DEPEN~0	INDEX	PSAPSR3	0.52	353		
SYS_LOB0000016372C00008\$\$	LOBSEGMENT	PSAPSR3	1.52	325	RSR_CACHE_DATA_B	DATA_XSTRING
/BIC/AZPU_03200	TABLE	PSAPSR3	4.77	262		
RSBATCHDATA	TABLE	PSAPSR3	4.36	255		
EDI40	TABLE	PSAPSR3	4.11	254		
/BIC/AZFISL_0100~0	INDEX	PSAPSR3	3.88	245		
BALDAT~0	INDEX	PSAPSR3	1.32	241		
/BIC/AZPU_03200~0	INDEX	PSAPSR3	3.07	241		

The following table shows you the top 10 segments based on monthly growth rate.

Top 10 Segments based on monthly growth rate

Segment name	Segment type	Tablespace	Size inGB	Extents	Table	Column
SYS_LOB0074346746C00013\$\$	LOBSEGMENT	PSAPSR3740	2.15	156	REPOLOAD	LDATA
SYS_LOB0074346746C00014\$\$	LOBSEGMENT	PSAPSR3740	2.00	153	REPOLOAD	QDATA
SYS_LOB0074322650C00034\$\$	LOBSEGMENT	PSAPSR3740	1.31	142	REPOSRC	DATA
SYS_LOB0074334279C00005\$\$	LOBSEGMENT	PSAPSR3740	1.19	140	DYNPSOURCE	FIELDINFO
SYS_LOB0074338521C00004\$\$	LOBSEGMENT	PSAPSR3740	0.20	35	DYNPLOAD	DATA
SYS_LOB0074335404C00004\$\$	LOBSEGMENT	PSAPSR3	0.18	32	DDNTF	FIELDS

Top 10 Segments based on monthly growth rate

Segment name	Segment type	Tablespace	Size in GB	Extents	Table	Column
SYS_LOB0074334279C00006\$\$	LOBSEGMENT	PSAPSR3740	0.16	30	DYNPSOURCE	LOGICINFO
SYS_LOB0074365542C00015\$\$	LOBSEGMENT	PSAPSR3	0.13	25	WDY_CTRLR_COMPO	CODE_BODY
/BIC/B0000319000	TABLE PARTITION	PSAPSR3	0.11	91		
/BIC/AZFISL_0100	TABLE	PSAPSR3	12.38	384		

14 Data Volume Management (DVM)



The database size and database growth of your system BWP indicate that no immediate action is required in the area of Data Volume Management.

You activated Data Volume Management (DVM) content focusing on Deletion and Data Archiving for your system BWP. With this activation, a periodically running background job is scheduled in your system BWP to collect DVM-relevant data. The data collected is stored in your SAP Solution Manager system and processed by this report. However, the dataset required to generate a comprehensive DVM section in this report does not contain all required data. Therefore, this report does not have a Data Volume Management (DVM) section populated with information about data archiving and deletion. Please check SAP Note [2035999](#) for troubleshooting information. Alternatively, you can start report RTCCTOOL with the DVM option in system BWP and request implementation of the missing SAP Notes (if found) in this system. If this does not help, please contact your system administrator for further assistance.

As a workaround, the database size and growth per year for your system BWP were checked. Here, we found a database size of 215,75 GB and a database growth of 1,39% per year. These figures indicate that, from a **Deletion and Data Archiving** perspective, no immediate activities are required for your system BWP.

15 BW Checks for BWP



Some problems were detected, that may impair your system's performance and stability. You should take corrective action as soon as possible.

Rating Overview

Rating	Check
	BW Administration & Design
	BW Reporting & Planning
	BW Warehouse Management

The first table above contains the ratings for the three main areas in this service. To identify what check causes one area (such as BW Administration & Design) to receive a RED rating, the individual checks with RED ratings are listed in subsequent tables with information about the check name and the main area to which the check belongs.

In general, the checks are structured in a hierarchy and, in most cases, a check with a RED rating will propagate the rating to its parent check. For this reason, it usually makes sense to follow the recommendations for the check at the lowest level in the hierarchy.

However, not all checks propagate their rating to their main check. In other words, a section can have a GREEN rating even though one of its checks has a RED rating.

15.1 BW Administration & Design

15.1.1 BW - KPIs

Some BW KPIs exceed their reference values. This indicates either that there are critical problems or that performance, data volumes, or administration can be optimized. Follow the recommendations below.

Note

If a large number of aggregates have 0 calls or are suggested for deletion, please check whether you deactivate (that is, delete the content of) aggregates before your roll-up/change runs. Aggregates recommended for deletion may include those that were recently deactivated and have not been used between deactivation and data collection for this service.

KPI	Description	Observed	Reference	Rating	Relevant for Overall Service Rating
Max requests in InfoProv (#)	Maximum number of requests in an InfoProvider	16255	10000	YELLOW	NO

Requests in InfoProviders:

Too many requests in your InfoProviders can cause severe performance problems. Since certain information of all requests is required in a data target when data is loaded, a relatively large number of entries must be read and processed in different tables. As a result, the processing times become longer.

For an overview of the loading activities in the past week, see the "Upload Statistics" section. See [SAP Note 620361](#) and follow its recommendations. [SAP Note 892513](#) describes a similar problem as well.

15.1.2 Data Distribution

15.1.2.1 Largest DSO tables

DSOName	Active Table name	# Records
ZFISL_01	/BIC/AZFISL_0100	129.218.667
ZPU_O32	/BIC/AZPU_O3200	53.486.200
ZPUO3304	/BIC/AZPUO330400	29.946.100
ZPU_O33	/BIC/AZPU_O3300	15.213.400
ZPUO3307	/BIC/AZPUO330700	14.146.800
ZPU_O43	/BIC/AZPU_O4300	12.233.300
ZPUO3308	/BIC/AZPUO330800	12.038.000
ZPUO3305	/BIC/AZPUO330500	9.572.400
ZPUO3306	/BIC/AZPUO330600	9.424.700
ZPU_O31	/BIC/AZPU_O3100	8.826.733

Large DataStore objects can have a negative impact on reporting and upload performance. See the detailed recommendations in the subsequent sections of this report.

Note: Keep in mind that the values in the table below are based on database statistics. If you have not updated the database statistics for the DataStore objects recently, the values do not reflect the latest status.

Parallel DataStore data activation can fail for large DataStore objects with a deadlock on the Oracle database.

Recommendation: Follow the implementation description in [SAP Notes 634458](#) - 'DSO Object: Activation Fails - DEADLOCK' and [84348](#) - 'Oracle Deadlocks, ORA-00060.'

15.1.2.2 Largest InfoCubes

The values in the "Records" column are the sum of the number of rows in the E and F tables. If they exceed specified threshold values, a YELLOW or RED rating will be propagated by this check in the session. The threshold values are **500,000,000** for YELLOW and **1,000,000,000** for RED.

InfoCube Name	# Records
ZPU_C01	43.983.960
0TCT_C02	28.094.160
ZSL_C01	8.217.180
ZSLC0208	4.298.850
ZSLC0206	3.476.410
ZSLC0216	3.324.040
ZSLC0205	3.316.470
0TCT_C22	3.147.280
ZSLC0201	2.934.650
ZSLC0207	2.779.020

Recommendations

The more records that are stored within an InfoCube, the more time is needed for administrative and/or maintenance tasks for the cube. Follow these guidelines to keep the number of records as small as possible and, therefore, manageable.

The more records (requests) that are stored in the F-fact table, the longer queries have to run to collect all relevant entries for their result sets. It also increases the time needed to delete and recreate secondary indexes before and after uploads into the cube, which is mandatory/advisable on some databases. Compress as many requests as possible. Depending on the cube design, this may also reduce the total number of records.

Query runtimes generally deteriorate if there are too many records, simply because the individual database tables get too big. If possible from a business perspective, archive or delete data that is no longer relevant for reporting.

If you cannot remove any records for business reasons, consider splitting one InfoCube into multiple physical objects. Split the InfoCube into multiple cubes using a suitable characteristic (time-based, region-based, and so on) and combine these cubes within a MultiProvider for reporting purposes. This concept is known as logical partitioning. On a BW release ≥ 7.30 , you can use a semantically partitioned object (SPO) to benefit from the advantages of logical partitioning (smaller physical objects) without the maintenance overhead formerly attached to this strategy.

15.1.2.3 Largest Aggregates

InfoCube	Aggregate Name	# Records
ZPU_C01	100002	15.077.583

InfoCube	Aggregate Name	# Records
ZPU_C01	100015	6.014.494
ZSL_C01	100066	3.964.860
ZSL_C01	100063	3.957.993
ZPU_C01	100016	2.632.704
ZPSCD_C01	100054	2.572.386
ZPU_C03	100020	1.354.554
ZLIV_C01	100060	778.248
0TCT_C21	100034	513.520
ZSL_C01	100068	431.673

Large aggregates need high runtime for maintenance like change runs and rollup of new data.

Recommendation: Please check section: "Analysis of Aggregates" for further hints.

15.1.2.4 Largest Master data tables (SID-tables)

Master data SID-Table	Table Name	# Records
0PSTNG_SEQ	/BI0/SPSTNG_SEQ	58.502.900
0AC_DOC_NO	/BI0/SAC_DOC_NO	27.279.500
0FM_DOC_NO	/BI0/SFM_DOC_NO	12.225.200
ZDOC_NUM	/BIC/SZDOC_NUM	3.580.933
ZCLEARDOC	/BIC/SZCLEARDOC	3.136.567

15.1.2.5 Largest Master data tables (time independent: X-tables)

Master data X-Table	Table Name	# Records
ZCO_OBJ	/BIC/XZCO_OBJ	748.930
0CONDRECNO	/BI0/XCONDRECNO	145.500

Master data X-Table	Table Name	# Records
0TCTBWOBJCT	/BI0/XTCTBWOBJCT	86.787
0VENDOR	/BI0/XVENDOR	78.170
0WBS_ELEMT	/BI0/XWBS_ELEMT	21.823

The table above shows the largest tables with time-independent navigational attributes. The usage of navigational attributes in aggregates will increase the runtime of the change run.

15.1.2.6 Largest Master data tables (time dependent: Y-tables)

Master data Y-Table	Table Name	# Records
0FUNDS_CTR	/BI0/YFUNDS_CTR	6.888
0COSTCENTER	/BI0/YCOSTCENTER	4.905
0CMMT_ITEM	/BI0/YCMMT_ITEM	3.310
0HRPOSITION	/BI0/YHRPOSITION	2.581
0PERSON	/BI0/YPerson	2.383

The table above shows the largest tables with time-dependent navigational attributes. Time-dependent navigational attributes can have a negative impact in the runtime of queries.

Recommendation: Please consider the usage of such objects carefully.

15.1.2.7 Largest Hierarchy tables (I-tables)

Master data Hierarchy	Table Name	# Records
0WBS_ELEMT	/BI0/IWBS_ELEMT	15.044
0CMMT_ITEM	/BI0/ICMMT_ITEM	10.086
0PU_MEASURE	/BI0/IPU_MEASURE	9.520
0GL_ACCOUNT	/BI0/IGL_ACCOUNT	3.635
0FUNDS_CTR	/BI0/IFUNDS_CTR	3.256

Large hierarchy I-Tables will have a negative impact on the runtime of queries using those hierarchies.

Recommendation: See [SAP Note 738098](#) - "Performance problems with hierarchies" .

15.1.3 Analysis of InfoProviders

15.1.3.1 InfoProvider Distribution

The following section provides an overview of the distribution of your InfoProviders. Only objects that are currently available for reporting are taken into account.

InfoProviders (individual)

Total	DataStore Objects	InfoCubes	InfoObjects
456	62	73	321

InfoProviders (collective)

Total	MultiProvider	HybridProviders	SPOs (InfoCube)	SPOs (DSO)	InfoSets
40	31	1	1	0	7

DataStore Objects

The table below provides an overview of the active DataStore Objects of the analyzed BW system.

Note that DataStore objects with a BEx flag = 'N' cannot be used directly in a reporting scenario but only as part of an InfoSet.

Total	DSO without BEx-flag	DSO with BEx-flag = "X"	DSOs with BEx-flag = "N"	Write-optimized DSOs	Write-optimized DSOs with BEx-flag = "N"	Direct-Update DSO
71	9	43	0	0	0	19

InfoCubes

The table below provides an overview of the active InfoCubes of the analyzed BW system.

Total	#InfoCube	#Aggregates	#Realtime Cubes	#Virtual Cube	#Remote Cube
73	47	44	8	1	17

Aggregates

The table below displays the Top10 InfoCubes regarding the number of their aggregates. A complete list with all InfoCubes is available within the service session in your SAP Solution Manager system.

Top10 InfoCubes

InfoCube	#Aggregates
#InfoCubes with Aggregates	31
#Aggregates (Total)	44
ZSL_C01	5

Top10 InfoCubes

InfoCube	#Aggregates
0TCT_C01	4
ZPU_C01	3
0TCT_C21	2
0TCT_C22	2
0TCT_C23	2
0TCT_C25	2
0TCT_C05	1
0TCT_CA1	1
ZCBR_C01	1

MultiProviders

Note

This check has been redesigned with the recent ST-SER Support Package and requires service tools add-on ST-A/PI release 01S or higher to be installed in the analyzed BW system. Therefore, please upgrade the BW's ST-A/PI accordingly to benefit from the latest improvements.

The following table shows the TOP10 MultiProviders (sorted by total number of InfoProviders), including information about the number and type of their part providers. A complete list with all MultiProviders is available within the service session in your SAP Solution Manager system.

[illegible]

MultiProvider	Total	#IC	#PC	#VC	#RC	#DSO	#WO-DSO	#DU-DSO	#IO	#HP	#SPO-IC	#SPO-DSO	#SPO-WO-DSO	#IS
OTCT_MC05	2	1	0	0	1	0	0	0	0	0	0	0	0	0
OTCT_MC21	2	1	0	0	1	0	0	0	0	0	0	0	0	0

IC - InfoCube, PC - Realtime Cube, VC - Virtual Cube, RC - Remote Cube

DSO - Standard DSO, WO-DSO - Write-optimized DSO, DU-DSO - Direct-Update DSO

IO - InfoObject

HP - Hybrid Provider

SPO-IC - SPO(InfoCubes), SPO-DSO - SPO(Standard DSOs), SPO-WO-DSO - SPO(Write-optimized DSOs)

IS - InfoSet

Semantic Partitioned Objects

The following table shows the TOP 10 semantically partitioned objects per type (sorted by number of partitions). A complete list with all SPOs is available within the service session in your SAP Solution Manager system.

SPO (InfoCube)	#Partitions	SPO (DSO)	#Partitions	BEx-Flag	SPO (WO-DSO)	#Partitions	BEx-Flag
Total #SPOs	1	Total #SPOs	0		Total #SPOs	0	
Total #Partitions	16	Total #Partitions	0		Total #Partitions	0	
ZSLC02	16						

15.1.3.2 Dimensions with line item and high cardinality flag

We checked for InfoCubes containing dimensions with the "High Cardinality" indicator.

Background: When this indicator is set, the database will create B*-tree indexes instead of bitmap indexes for this dimension. This can lead to a reduction in performance, as only bitmap indexes can be used for a star-join access, which is the most effective way of selecting data.

Recommendation: Remove all "High-Cardinality" indicators from the InfoCube definition. In rare cases, the time used to recreate the indexes can increase. In this case, set the indicator again.

Note: Setting the "Line Item" indicator is useful for reporting and upload performance, but it can have a negative influence on the performance of input help functions.

InfoCube	Line Item	High Card	DIM 1	DIM 2	DIM 3	DIM 4	DIM 5	DIM 6	DIM 7	DIM 8	DIM 9	DIM A	DIM B	DIM C	DIM D
ZSLC0201	6	3+	L	L	L	+	+								

InfoCube	Line Item	High Card	DIM 1	DIM 2	DIM 3	DIM 4	DIM 5	DIM 6	DIM 7	DIM 8	DIM 9	DIM A	DIM B	DIM C	DIM D
ZSLC0202	6	3+	L	L	L	+	+								
ZSLC0203	6	3+	L	L	L	+	+								
ZSLC0204	6	3+	L	L	L	+	+								
ZSLC0205	6	3+	L	L	L	+	+								
ZSLC0206	6	3+	L	L	L	+	+								
ZSLC0207	6	3+	L	L	L	+	+								
ZSLC0208	6	3+	L	L	L	+	+								
ZSLC0209	6	3+	L	L	L	+	+								
ZSLC0210	6	3+	L	L	L	+	+								
ZSLC0211	6	3+	L	L	L	+	+								
ZSLC0212	6	3+	L	L	L	+	+								
ZSLC0213	6	3+	L	L	L	+	+								
ZSLC0214	6	3+	L	L	L	+	+								
ZSLC0215	6	3+	L	L	L	+	+								
ZSLC0216	6	3+	L	L	L	+	+								
ZLIV_C01	9	1	L	L	L	L	+	L	L	L	L				
ZPUR_C01	8	1	+	L	L		L			L		L	L	L	
ZPUR_C02	9	1	L	L	L	L	+	L	L	L	L				
ZPU_C03	1	1													+

Table Legend:

L: "Line-Item" indicator set

H: "High-Cardinality" indicator set

+: "Line-Item" & "High-Cardinality" indicators set

15.1.3.3 InfoCube Design of Dimensions

We checked for InfoCubes with one or more dimensions containing 30% or more entries compared to the number of records in the fact tables and found that the design of your InfoCubes complies with our recommendations.

Explanation: The ratio between the number of entries in the dimension tables and the number of entries in the fact table should be reasonable. If an InfoObject has almost as many distinct values as there are entries in the fact table, the dimension this InfoObject belongs to should be defined as a line item dimension. Instead of creating a dimension table that has almost as many entries as the fact table, the system then writes the data directly to the fact table.

On the other hand, if there are several dimension tables with very few entries (for example, less than 10), those small dimensions should be combined in just one dimension.

In order to obtain this information for your InfoCubes:

- Call transaction RSRV.
- Choose "All Elementary Tests" - "Database."
- Double-click the line "Database Information about InfoProvider Tables."
- In the window on the right, choose "Database Information about InfoProvider Tables."
- Enter the InfoCube name and choose "Execute Tests."
- After the analysis finishes, choose "Display Messages" and open the analysis tree with the correct time stamp.

15.1.3.4 InfoCube partitioning

Our analysis showed that the validity date for range partitioning in your active InfoCubes was not exceeded. Nevertheless, make sure that your partitioned InfoCubes do not exceed the range partitioning in future.

If the validity date for range partitioning is exceeded, a single new, and ever-growing partition is created, which contains all of the data added to the InfoCube since the validity date was exceeded. This can lead to performance problems since the partition can grow quite large and is accessed continually for the most recent information.

Number of InfoCubes partitioned until this year	
	0

F-Fact table partitioning

F-Fact Tables

F-fact table name	# Partitions
/BIC/FZPSCD_C01	387
/BIC/FZPU_C01	95
/BIC/FZCBR_C01	61
/BIC/FZSL_C01	45
/BIC/FZSLC0214	42
/BIC/FZSLC0213	42
/BIC/FZSLC0212	42
/BIC/FZSLC0211	42

F-Fact Tables

F-fact table name	# Partitions
/BIC/FZSLC0210	42
/BIC/FZSLC0209	42
/BIC/FZPU_C03	42
/BIC/FZPUR_C01	42
/BIC/FZPUR_C02	42
/BIC/FZSLC0216	42
/BIC/FZSLC0215	42
/BIC/FZLIV_C01	41
/BIO/F0TCT_C02	34
/BIO/F0TCT_C01	33
/BIO/F0TCT_C21	33
/BIO/F0TCT_C22	33
/BIO/F0TCT_C23	33
/BIO/F0TCT_CA1	33

The tables listed above have more than 30 partitions.

Recommendation:

To avoid performance issues when these tables are read, we recommend that you use compression on the InfoCubes of these F fact tables. This is even more important for non-cumulative InfoCubes. For more information, see [SAP Note 590370](#).

Empty F-Fact table Partitions

F-fact table name	# Empty partitions
/BIC/FZPSCD_C01	380

The 'Empty Partitions' table contains up to ten F-fact tables with the highest number of empty partitions. There are 1 F-fact tables in total that contain empty partitions, in your system. To check for tables with empty partitions, use report SAP_DROP_EMPTY_FPARTITIONS. See SAP Note 430486 for the recommendations for an overview or repair of F-fact tables in a BW InfoCube.

Note: If the values shown in the table above do not seem reasonable when compared to report SAP_DROP_EMPTY_FPARTITIONS, the database statistics are probably not up-to-date, so we were not able to collect the most current data. To fix this, refresh the statistics.

E-Fact-Table partitioning (Search for E Fact tables with many parts)

There is no action currently required as we have not found any E-Fact tables with 100 partitions or more.

15.1.4 Analysis of Aggregates

Aggregates only improve performance when they are used by your queries and when they summarize (= aggregate) the data of the structure from which they are built (the InfoCube or another aggregate). Unused or incorrect aggregates consume space in your database and

increase the time needed for roll-up and change run procedures. For this reason, you should create only helpful aggregates in your system and regularly check that they are efficiently used by your reporting activities.

SAP offers various training courses for performance optimization of BW Queries, such as BW360: "SAP BW Operations and Performance".

For more details about this and other training courses, please refer to the SAP Training Center available at <http://training.sap.com>

Maintenance of Aggregate 100041

Notification:

The data collector that provides the information for this section has been rewritten for performance reasons.

To benefit from this change, apply either the latest version of ST-A/PI release 01R or the current version of [SAP Note 1808944](#) in addition to ST-A/PI release 01Q. Note that this has to be done in the BW system and not in SAP Solution Manager.

Name	Rollup	(Re)Creation	Delta Change	Total
ZSLC0210/100041				
# Executions	10,0	0,0	0,0	10,0
Total time [s]	9,8	0,0	0,0	9,8
Avg. total time [s]	1,0	0,0	0,0	1,0
Avg. read time [s]	0,0	0,0	0,0	0,0
Avg. insert time [s]	0,4	0,0	0,0	0,4
Avg. index time [s]	0,3	0,0	0,0	0,3
Avg. analyze time [s]	0,0	0,0	0,0	0,0
Avg. condense time [s]	0,3	0,0	0,0	0,3
Avg. # records (read)	190,9	0,0	0,0	190,9
Avg. # records (inserted)	28,2	0,0	0,0	28,2

Maintenance of Aggregate 100043

Notification:

The data collector that provides the information for this section has been rewritten for performance reasons.

To benefit from this change, apply either the latest version of ST-A/PI release 01R or the current version of [SAP Note 1808944](#) in addition to ST-A/PI release 01Q. Note that this has to be done in the BW system and not in SAP Solution Manager.

Name	Rollup	(Re)Creation	Delta Change	Total
ZSLC0211/100043				
# Executions	10,0	0,0	0,0	10,0
Total time [s]	9,2	0,0	0,0	9,2
Avg. total time [s]	0,9	0,0	0,0	0,9
Avg. read time [s]	0,0	0,0	0,0	0,0
Avg. insert time [s]	0,4	0,0	0,0	0,4
Avg. index time [s]	0,3	0,0	0,0	0,3
Avg. analyze time [s]	0,0	0,0	0,0	0,0
Avg. condense time [s]	0,2	0,0	0,0	0,2
Avg. # records (read)	190,6	0,0	0,0	190,6
Avg. # records (inserted)	6,7	0,0	0,0	6,7

Maintenance of Aggregate 100049

Notification:

The data collector that provides the information for this section has been rewritten for performance reasons.

To benefit from this change, apply either the latest version of ST-A/PI release 01R or the current version of [SAP Note 1808944](#) in addition to ST-A/PI release 01Q. Note that this has to be done in the BW system and not in SAP Solution Manager.

Name	Rollup	(Re)Creation	Delta Change	Total
ZSLC0214/100049				
# Executions	10,0	0,0	0,0	10,0
Total time [s]	9,4	0,0	0,0	9,4
Avg. total time [s]	0,9	0,0	0,0	0,9
Avg. read time [s]	0,0	0,0	0,0	0,0
Avg. insert time [s]	0,3	0,0	0,0	0,3
Avg. index time [s]	0,4	0,0	0,0	0,4

Name	Rollup	(Re)Creation	Delta Change	Total
Avg. analyze time [s]	0,0	0,0	0,0	0,0
Avg. condense time [s]	0,2	0,0	0,0	0,2
Avg. # records (read)	651,3	0,0	0,0	651,3
Avg. # records (inserted)	28,4	0,0	0,0	28,4

15.1.5 Partitioning of BW Tables managed by RSTSODS

Depending on the database on which your BW system runs, several BW-specific table types will be range-partitioned automatically by the application. This mechanism applies to write-optimized DSOs, standard DSO change logs, PSA tables, and DTP error stacks.

The partitioning criterion is controlled by field PARTNO of table RSTSODS. This field is defined as numc(4), which means the range value cannot exceed 9.999. If this limitation is reached, no further INSERTs into the table are possible. As a result, further uploads into the PSA/WO-DSO or DSO activations would fail.

Possible countermeasures:

For SAP BW >= 7.30

[SAP Note 2247910 - 730SP15: PSA Repartitioning/ Reorganization Tool](#) introduces ABAP report RSAR_PSA_REPARTITION, which allows you to repartition these tables in order to "move" data from partitions with a high PARTNO value to those with a low value. If you want to make use of this feature, please make sure that the subsequent SAP Notes are either implemented or that you are already on the corresponding release/SP levels:

* [2551718 - 730SP19: Restart Scenario of Repartition/Reorganization PSA tool doesn't work correctly](#)

* [2688169 - 730SP19: Restart Scenario of Repartition/Reorganization PSA tool doesn't work correctly\(2\)](#)

* [2714214 - 730SP20: Minor problems in PSA repartitioning](#)

* [2756311 - 740SP22: Problems in PSA Service and Re-Partitioning of PSA](#)

* [2765807 - 740 SP22: Minor problems in PSA Repartition - II](#)

* [2769445 - 740 SP22: Syntax errors in SQL in Re-partition of PSA in SYBASE and MSSQL](#)

For SAP BW < 7.30 (only on Oracle)

You may run ABAP report SAP_PSA_PARTNO_COMPRESS to repartition the table(s). Before you do, make sure that [SAP Note 2295109 - SP34:Maximum partition '9999' reached in PSA/changelog table](#) is implemented or that you are at least on a corresponding release/SP level. SAP BW release and database independent

If none of the options above apply to your system, you have the option of dropping the table from the database and activating the corresponding object (DataSource, DSO, DTP) again, which will recreate the table with initial RSTSODS settings. However, this is only a possibility if you no longer require the data it originally contained.

If necessary, you can increase the threshold values regarding the size of the individual table partitions by using maintenance transaction RSCUSTV6. The higher the value, the less frequent a new partition will be created and the longer it will take to reach the 9.999 limit.

The table below lists the Top10 tables with PARTNO >= 5.000. If no table is displayed, there either are no such tables or the necessary data to analyze the situation was not available.

15.1.6 Number Range Buffering for BW Objects

For each characteristic and dimension, BW uses a number range to uniquely identify a value (SIDs and DIM IDs). If the system creates a high amount of new IDs periodically, the performance of a data load may decrease.

To avoid the high number of accesses to the NRIV table, activate number range buffering for these BW objects (Main Memory Number Range Buffering). For more detailed information, see [SAP Notes 504875](#), [141497](#), and [179224](#).

To map InfoCube dimensions to their number range objects, use table RSDDIMELOC with INFOCUBE = <InfoCube Name> to find the number range object in the NOBJECT field.

To map InfoObjects to their number range objects, use table RSDCHABASLOC with CHABASNM = <InfoObject Name>. The number range object is the value of NUMBRANR with the prefix 'BIM'. The tables below provide an overview of the number range buffering settings of dimensions and InfoObjects, sorted in descending order by the number range level ("Level"). This information identifies candidates for activating the number range main memory buffer. The figures in the '# Rows' column are based on database statistics.

Recommendation

Activate number range buffering for all dimensions and InfoObjects with a high number of rows, based on the rules in [SAP Note 857998](#). Note that you must NEVER buffer the package dimension of an InfoCube nor the InfoObject OREQUID (usually number range object BIM9999998).

Note

Neither the number of DIM IDs in a dimension table nor the number of SIDs of an InfoObject may exceed the threshold value of **2,000,000,000** (technical limitation). Coming close to this limit points to a problem with your dimension and/or InfoObject modeling. In this case, the corresponding data model should be refined. For a thorough discussion of this topic, see [SAP Note 1331403](#). If a dimension or an InfoObject has more than **1,500,000,000** entries, a RED rating is set for this check, unless you confirm that you have taken precautions to prevent further growth of the object in question.

Top10 Unbuffered dimensions with highest number range level

InfoCube	Dimension	# Rows	NR Object	NR Level
ZPSCD_C04	ZPSCD_C043	43.167	BID0001876	35.356.774
ZPSCD_C04	ZPSCD_C042	17.637	BID0001875	29.889.933
ZPSCD_C03	ZPSCD_C03A	1	BID0001892	15.375.587
ZPSCD_C03	ZPSCD_C039	1	BID0001891	10.088.218
ZPSCD_C03	ZPSCD_C034	1	BID0001886	5.892.731
ZPU_C01	ZPU_C01A	4.670.100	BID0002039	4.835.399
ZPSCD_C04	ZPSCD_C047	1.332	BID0001929	1.584.895
ZPSCD_C04	ZPSCD_C045	1.328	BID0001878	1.579.521
0TCT_C21	0TCT_C212	815.860	BID0002988	831.109
ZPSCD_C01	ZPSCD_C011	253.770	BID0001933	794.532

TOP 10 Buffered Dimensions with Highest Number Range Level

You currently have not activated number range buffering for any InfoCube dimension.

Top10 Unbuffered InfoObjects with highest number range level

InfoObject	SID Table	# Rows	NR Object	NR Level
0PSTNG_SEQ	/BI0/SPSTNG_SEQ	58.502.900	BIM0002007	60.974.712
0AC_DOC_NO	/BI0/SAC_DOC_NO	27.279.500	BIM0000311	29.023.358
0FM_DOC_NO	/BI0/SFM_DOC_NO	12.225.200	BIM0000698	12.747.661
ZDOC_NUM	/BIC/SZDOC_NUM	3.580.933	BIM0001125	3.810.504
ZCLEARDOC	/BIC/SZCLEARDOC	3.136.567	BIM0001143	3.438.637
ZPAYEENM	/BIC/SZPAYEENM	2.533.633	BIM0002089	2.630.017
0TCTTIMSTMP	/BI0/STCTTIMSTMP	2.125.333	BIM0000030	2.182.564

Top10 Unbuffered InfoObjects with highest number range level

InfoObject	SID Table	# Rows	NR Object	NR Level
0PSCD_COID	/BI0/SPSCD_COID	1.619.733	BIM0001103	1.625.809
ZDOC2	/BIC/SZDOC2	1.152.933	BIM0001924	1.158.782
0PU_DOCLN	/BI0/SPU_DOCLN	1.019.467	BIM0002085	1.092.141

TOP 10 Buffered InfoObjects with Highest Number Range Level

You currently have not activated number range buffering for any InfoObject.

15.1.7 DTP Error Handling

The first table below shows an overview of the error handling usage of the active data transfer processes in the BW system. It indicates the total number of active DTPs and the number of DTPs using the four different error handling options.

The second table shows the number of existing error DTPs as well as the number of missing and unnecessary ones. 'Missing' in this context means that a DTP uses error handling option 3 or 4 but no error DTP exists for it. This may indicate that error handling is being used inadvertently and could be deactivated to improve performance. 'Unnecessary' refers to error DTPs of which the source DTP does not use error handling. These error DTPs, therefore, could probably be deleted. This is a pure maintenance task; there is no effect on performance whatsoever.

DTP Overview - Error Handling

# DTPs	#1 Deactivated	#2 No Update, No Reporting	#3 Update Valid Records, No Reporting	#4 Update Valid Records, Reporting Possible
264	134	62	65	3

DTP Overview - Error DTPs

# Error DTPs	# Missing Error DTPs	# Unnecessary Error DTPs
2	66	0

Recommendation:

Deactivate error handling with error stack creation if not required:

Do not use error handling with error stack creation for every upload. Use the 'No Update, No Reporting' option instead. We recommend using error handling with error stack creation only once per data flow, usually for the first DTP in a dataflow, when the potential for incorrect data delivery from the source system is highest. For further data mart uploads, use it only where necessary (for example, with a very complex, error-prone transformation routine in a certain upload).

When using error handling with error stack creation:

Error handling with error stack creation also filters out correct records for data targets that require sorting, when semantic grouping is activated. As semantic grouping causes a sorting and re-packaging of the source packages, which allows loading in parallel packages afterwards to the data targets, it is also resource intensive. For this reason, we advise not using it in every upload where error handling with error stack creation is activated. Instead, it should be used only when it is necessary to support parallel loading. Here is a quick matrix:

Use semantic grouping when loading with error handling (and error stack) to the following targets to support parallel loading:

- InfoObject
- standard DSO or write-optimized DSO with semantic key

Do not use semantic grouping when loading with error handling (and error stack) to the following targets (as they allow parallel loading anyway):

- InfoCube
- write-optimized DSO without semantic key

Differences between option 1 'Error Handling deactivated' and option 2 'No update, no reporting'

If an incorrect record exists while using option 1 'Error Handling deactivated', the error is reported at data package level, that is, it is not possible to identify the incorrect record(s). With option 2 'No update, no reporting', the incorrect record(s) is/are highlighted so that the error can be assigned to specific data records. This makes it easier to correct the request in the source system. As neither scenario writes to the error stack, the whole request is terminated and has to be loaded again in its entirety. The performance difference between option 1 and option 2 is minimal, especially when compared to an error handling option using the error stack (options 3 and 4).

15.1.8 Recommendations for BW System BWP

15.1.8.1 Important SAP Notes for BW

The table below lists important SAP Notes for BW that address performance.

Important notes for BW 7.x

SAP Note Number	Description
1392715	DSO req. activation: collective perf. problem note
1331403	SIDs, Numbrerranges and BW Infoobjects
1162665	Changerun with very big MD-tables
1136163	Query settings in RSRT -> Properties
1106067	Low performance when opening BEx Analyzer on Windows Server
1101143	Collective note: BEx Analyzer performance
1085218	NetWeaver 7.0NetWeaver 7.x BI Frontend SP\Patch Delivery Schedule
1083175	IP: Guideline to analyze a performance problem
1061240	Slow web browser due to JavaScript virus scan
1056259	Collective Note: BW Planning Performance and Memory
1018798	Reading high data volumes from BIA
968283	Processing HTTP requests in parallel in the browser
914677	Long runtime in cache for EXPORT to XSTRING
899572	Trace tool: Analyzing BEx, OLAP and planning
892513	Consulting: Performance: Loading data, no of pkg,
860215	Performance problems in transfer rules
857998	Number range buffering for DIM-IDs and SIDs
803958	Debuffering BW master data tables
550784	Changing the buffer of InfoObjects tables
192658	Setting parameters for BW systems

15.1.8.2 Nametab inconsistencies

Nametab inconsistencies

Table	# Total	# View 01	# View 02	# View 03	# View 04	# View 05	# View 06
DDNTT	350	0	304	0	0	0	46
DBDIFF	368	6	304	0	0	0	58
RSDD_TMPNM_ADM	225	0	204	0	0	0	21
DBA_VIEWS	0	0	0	0	0	0	0

There are several entries in tables DDNTT and DDNTF that cannot be found in tables DBDIFF and RSDD_TMPNM_ADM (or in the DB_VIEWS of Oracle).

This means that these temporary entries are obsolete and no longer used.

Recommendation: Check [SAP Note 1139396](#) and run reports SAP_DROP_TMPTABLES and SAP_UPDATE_DBDIFF to clean obsolete temporary entries.

Caution: The report SAP_DROP_TMPTABLES deletes all objects (except for the temporary hierarchy tables) without checking whether they are still in use. This can result in terminations of queries, InfoCube compression, and data extraction, for example, if these are running simultaneously.

If temporary objects prove to be inconsistent under DB02, you must execute report SAP_UPDATE_DBDIFF once. If you use the DB02 again afterwards, you must make sure that the system updates the results. The report copies information about differences between definitions in the ABAP DDIC and in the DB catalog to table DBDIFF. DB02 includes the table when checking for inconsistencies.

15.1.9 BW Statistics

Since new data is continuously loaded into the Business Warehouse(BW), the amount of data is always increasing. The structure of such data may also change. You can obtain information about data growth from the statistical data in the "BW Statistics" menu, at InfoCube, query, InfoSource, and aggregate level. These statistics also provide information about the performance of your queries.

An overview of the BW processes is essential, and more useful than a detailed view of database statistics, or even CCMS.

Background: When you maintain the settings for the query statistics, deactivating the statistics is the same as activating the statistics internally with detail level 9. In both cases, no statistical data is written.

The settings on the "InfoProvider" tab page affect the collection of statistical data for queries, as well as the settings on the "Query" tab page (transaction RSDDSTAT). The following logic applies: If there are settings for the query (other than "Default"), the maintained statistical settings are chosen to write or not write the statistical data.

Otherwise, the setting for the InfoProvider on which the query is defined, is used. If there is neither a setting for the query, nor for the InfoProvider (both are "D"), the general default setting maintained for all queries is used. If you have not changed the default settings, the statistics are activated with detail level 1.

For Web templates, workbooks, and InfoProviders, you can decide between activating or deactivating the statistics only. If you did not maintain settings for the individual objects, the default setting for the object is used. If you did not change the default settings, the statistics are activated.

The following table contains an overview of the current statistical settings for the different objects.

Object	Statistics activated?	Detail Level	# Objects
Query Element	X	1	457

Object	Statistics activated?	Statistics deactivated?	# Objects
Aggregation Level	X		1
Web Template	X		248
Workbook	X		6
InfoProvider	X		609

BW Technical Content for Statistical Data

From NetWeaver BW 7.0, activate the technical content for the BW statistical data. You can then use many additional features, such as ST03N. Process chains are also provided to facilitate the administration of the statistical data and provide routines for automatic deletion of the RSDDSTAT* tables.

The table below provides an overview of the technical content for statistical data currently available in your system. This table provides the Basis InfoProviders and the corresponding MultiProviders and Virtual Cubes. The current object version and the date when the statistical data was last uploaded to the Basis InfoProvider are also listed. If there is no table, you have not yet imported any technical content. Upload the statistical data at least once a week.

Recommendation: Activate the technical content and upload the data regularly. For further information, see [SAP Note 934848](#), steps 1 to 5.

Basis InfoProvider	Object Version	Last Upload	MultiProvider Object Version	Virtual Cube Object Version	Long Description Basis InfoProvider
0TCT_C01	A	05.01.2020	A	A	Front-End and OLAP Statistics (Aggregated)
0TCT_C02	A	05.01.2020	A	A	Front-End and OLAP Statistics (Details)
0TCT_C03	A	05.01.2020	A	A	Data Manager Statistics (Details)
0TCT_C05	A	15.12.2017	A	A	OLAP Statistics: Cache type

Basis InfoProvider	Object Version	Last Upload	MultiProvider Object Version	Virtual Cube Object Version	Long Description Basis InfoProvider
					Memory Consumption
0TCT_C12	D	00.00.0000	A	A	Process Status
0TCT_C14	A	05.01.2020	D		Report Availability Status
0TCT_C15	A	05.01.2020	A		BW Data Storages with inconsistent and incomplete data
0TCT_C21	A	05.01.2020	A	A	Process Statistics
0TCT_C22	A	05.01.2020	A	A	DTP Statistics
0TCT_C23	A	05.01.2020	A	A	InfoPackage Statistics
0TCT_C25	A	03.01.2020	A		Database Volume Statistics
0TCT_C31	A	00.00.0000	A	A	BWA Statistics: CPU Consumption
0TCT_C32	A	00.00.0000	A	A	BWA Statistics: InfoProvider Memory Consumption
0TCT_CA1	A	05.01.2020	A	A	Front-End and OLAP Statistics (Highly Aggregated)

15.2 BW Reporting & Planning

15.2.1 BW Runtime Statistics for BWP

The performance of your queries and upload was analyzed with respect to average runtime and total workload. The following table provides an overview of your system activity and performance from the BW point of view.

Note: All queries using the 'Read API' of your system (such as from connected SAP-APO or SAP-SEM systems) are named 'RSDRI_QUERY,' so you cannot locate them in your BW system. Please note that the following chapters only contain queries/InfoCubes for which the statistics indicators are set.

Task type	Navigation steps	Runtime > 20 seconds [%]	Avg. runtime [s]	Avg. time OLAPCACHE [s]	Avg. time OLAP [s]	Avg. time DB [s]	Avg. time Frontend [s]	Other time/ RFC [s]
All Queries	307	9	15,4	0,1	0,8	14,2	0,3	0,0

15.2.1.1 Top Infoprovider per Queries

The following table lists the top five InfoProviders based on the number of query hits.

Top InfoProviders per number of queries

InfoProvider	Query Steps	Avg. runtime [s]	Runtime [%]	Avg. time OLAP [s]	Avg. time DB [s]	Avg. time Planning [s]	Avg. Frontend time [s]	Avg. Time Others/ RFC [s]
ZPU_C01	242	16,40	83	0,70	15,30	0,00	0,20	0,00
ZPU_M05	230	2,20	11	0,20	1,80	0,00	0,10	0,00
ZPU_M01	27	7,20	4	0,10	5,90	0,00	0,10	0,00
ZSL_C01	14	3,70	1	0,00	0,90	0,00	0,20	0,00
0TCT_MC12	4	9,20	1	0,30	6,20	0,00	0,20	0,00

15.2.1.2 Frontend Distribution

The diagram and the table below provide an overview of the front-end distribution. It contains the total number of queries executed in the last complete week (Monday to Sunday) and the number of queries executed via the different front ends.

# Query executions	BEx Web 7.x (JAVA)
594	594

15.2.1.3 Query Profile Check

Queries

Task Type	# Query executions	Runtime > 20 seconds [%]	Avg. Runtime [s]	Avg. Time OLAPINIT [s]	Avg. Time OLAP [s]	Avg. Time DB [s]	Avg. Time Planning [s]	Avg. Time Others/ RFC [s]
All Queries	594	4	7,94	0,04	0,40	7,32	0,00	0,01
DB Queries	594	4	7,94	0,04	0,40	7,32	0,00	0,01

The following table provides a summary of the query runtimes and distinguishes between the different front ends.

If no queries were started over the last seven days with the specified options, the corresponding summary line is not displayed.

Task Type	Query executions	Runtime > 20 seconds [%]	Avg. Runtime [s]	Avg. Time OLAPINIT [s]	Avg. Time OLAP [s]	Avg. Time DB [s]	Avg. Time Planning [s]	Avg. Time Frontend [s]	Avg. Time Others/ RFC [s]
All Queries	594	5	7,96	0,04	0,40	7,32	0,00	0,17	0,01
BEx Web (JAVA)	594	5	7,96	0,04	0,40	7,32	0,00	0,17	0,01

Top Time Queries by Total Workload

The total workload caused by queries is defined as the sum of the total runtimes of all queries. The following query profile lists the queries, as a percentage of total runtime, that contribute the greatest amount to the total workload.

Query name	InfoCube	Query Executions	Runtime [%]	Avg. runtime [s]	Avg. DB time [s]	Avg. OLAP time [s]	Avg. Frontend time [s]	Avg. Time Others/ RFC [s]
Total		218	100	28,34	17,35	0,43	0,54	0,01
Z_ZPU_C01_Q004	ZPU_C01	171	59	21,47	20,64	0,53	0,23	0,01
Z_ZPU_M05_Q015	ZPU_M05	7	5	40,18	6,08	0,05	1,48	0,00
Z_ZPU_M05_Q016	ZPU_M05	5	5	55,62	0,89	0,02	1,68	0,00
Z_ZPU_M05_Q017	ZPU_M05	5	5	55,62	0,84	0,02	1,68	0,00
Z_ZPU_M05_Q018	ZPU_M05	5	5	55,62	0,82	0,02	1,68	0,00

Query name	InfoCube	Query Executions	Runtime [%]	Avg. runtime [s]	Avg. DB time [s]	Avg. OLAP time [s]	Avg. Frontend time [s]	Avg. Time Others/ RFC [s]
Z_ZPU_M05_Q019	ZPU_M05	5	5	55,62	2,59	0,03	1,68	0,00
Z_ZPU_M05_Q020	ZPU_M05	5	5	55,62	1,00	0,03	1,68	0,00
Z_ZPU_M05_Q021	ZPU_M05	5	5	55,62	1,14	0,03	1,68	0,00
Z_ZPU_M05_Q022	ZPU_M05	5	5	55,62	0,32	0,04	1,68	0,00
Z_ZPU_M05_Q023	ZPU_M05	5	5	55,62	34,74	0,09	1,68	0,00

Top Time Queries by DB Load

The total database workload generated by the BW system is the sum of the total database access times of all queries. The following query profile lists the queries, as percentages of total database access time, that make up the largest part of the database load.

Query name	InfoCube	# Executions	DB load [%]	Avg. DB time [s]	Avg. Runtime [s]
Total		288	100	14,42	16,65
Z_ZPU_C01_Q004	ZPU_C01	171	85	20,64	21,47
Z_ZPU_M05_Q023	ZPU_M05	5	4	34,74	55,62
Z_ZPU_M01_Q001	ZPU_M01	1	3	115,40	116,63
Z_ZPU_C01_Q011	ZPU_C01	56	3	1,90	3,17
Z_ZPU_C01_Q005	ZPU_C01	15	2	5,18	7,20
Z_ZPU_M05_Q015	ZPU_M05	7	1	6,08	40,18
Z_ZPU_M01_Q501	ZPU_M01	11	1	2,80	6,07
Z_ZPU_M05_Q013	ZPU_M05	5	1	5,68	6,35
Z_OTCT_MC12_Q0100	OTCT_MC12	4	1	6,20	9,17
Z_ZPU_M05_Q012	ZPU_M05	13	1	1,81	2,03

Top Time Queries by Average Runtime

The ten queries whose average runtimes have the highest optimization potential are listed here.

Query name	InfoCube	Avg. Runtime [s]	Avg. DB time [s]	Avg. OLAP time [s]	Avg. Frontend time [s]	Avg. Time Others/ RFC [s]
Total		62,80	4,46	0,05	1,51	0,00
Z_ZPU_M01_Q001	ZPU_M01	116,63	115,40	0,88	0,30	0,00
Z_ZPU_M01_Q002	ZPU_M01	116,63	0,00	0,00	0,27	0,00
Z_ZPU_M01_Q006	ZPU_M01	116,63	0,00	0,00	0,27	0,00
Z_ZPU_M01_Q005	ZPU_M01	116,63	0,00	0,00	0,27	0,00
Z_ZPU_M05_Q016	ZPU_M05	55,62	0,89	0,02	1,68	0,00
Z_ZPU_M05_Q017	ZPU_M05	55,62	0,84	0,02	1,68	0,00
Z_ZPU_M05_Q018	ZPU_M05	55,62	0,82	0,02	1,68	0,00
Z_ZPU_M05_Q019	ZPU_M05	55,62	2,59	0,03	1,68	0,00
Z_ZPU_M05_Q020	ZPU_M05	55,62	1,00	0,03	1,68	0,00
Z_ZPU_M05_Q021	ZPU_M05	55,62	1,14	0,03	1,68	0,00

15.2.1.4 Queries by Total Workload per Frontend

The tables below contain data about the 10 queries for each step type that consumed the most time with regard to runtime.

Note that these tables contain data about single query executions. This means that the data is not summarized and that the name of a query may appear several times.

Queries: BEx Web 7.x (JAVA)

Query name	InfoCube	Query Executions	Runtime [%]	Avg. runtime [s]	Avg. DB time [s]	Avg. OLAP time [s]	Avg. Frontend time [s]	Avg. Time Others/ RFC [s]
Z_ZPU_C01_Q004	ZPU_C01	171	59	21,47	20,64	0,53	0,23	0,01
Z_ZPU_M05_Q015	ZPU_M05	7	5	40,18	6,08	0,05	1,48	0,00
Z_ZPU_M05_Q016	ZPU_M05	5	5	55,62	0,89	0,02	1,68	0,00
Z_ZPU_M05_Q017	ZPU_M05	5	5	55,62	0,84	0,02	1,68	0,00
Z_ZPU_M05_Q018	ZPU_M05	5	5	55,62	0,82	0,02	1,68	0,00
Z_ZPU_M05_Q019	ZPU_M05	5	5	55,62	2,59	0,03	1,68	0,00
Z_ZPU_M05_Q020	ZPU_M05	5	5	55,62	1,00	0,03	1,68	0,00
Z_ZPU_M05_Q021	ZPU_M05	5	5	55,62	1,14	0,03	1,68	0,00

Queries: BEx Web 7.x (JAVA)

Query name	InfoCube	Query Executions	Runtime [%]	Avg. runtime [s]	Avg. DB time [s]	Avg. OLAP time [s]	Avg. Frontend time [s]	Avg. Time Others/ RFC [s]
Z_ZPU_M05_Q022	ZPU_M05	5	5	55,62	0,32	0,04	1,68	0,00
Z_ZPU_M05_Q023	ZPU_M05	5	5	55,62	34,74	0,09	1,68	0,00

15.2.1.5 WEB - Queries

WEB Templates (TOP 10 per Runtime)

The following table lists the top 10 templates that contribute the greatest amount to the total workload.

Template Name (Page ID)	Runtime [s]	# Navigation Steps	# Query Executions	Avg. runtime / NavStep [s]	DB Time [%]	OLA P Time [%]	Avg. Template prepare time / NavStep [s]	Avg. Template render time / NavStep [s]
Total	177,56	11	117	16,14	78,79	6,59	0,63	0,00
ZFINANCE_DASHBOARD	133,99	8	104	16,75	78,66	6,46	0,66	0,00
Z_ADMIN_COCKPIT	42,56	2	12	21,28	80,57	6,25	0,75	0,00
OTCT_MCA1_QY0142	1,01	1	1	1,01	21,78	37,62	0,19	0,00

Query Analysis of Top 3 Templates

The following tables provide an overview of the queries that are included in the top three Web templates.

The "Total" line summarizes the time required to display the template, and is therefore the same as that displayed in the section above. The "GENERAL" line displays all times that do not belong to a specific query, but that are needed for rendering and preparing the template. Finally, the query-specific values are displayed, showing where the most time is spent.

Note that the number of steps displayed in the table has two different meanings: The Total and GENERAL lines show the number of template executions, whereas the queries show the number of query navigations.

Queries of top Template 1

Template	Query name	InfoCube	# Steps	Runtime [%]	Avg. DB time [s]	Avg. OLA P time [s]	Avg. Time Rendering [s]	Template Prepare Time [s]
ZFINANCE_DASHBOARD	Total		8	100,00	13,18	1,08	0,00	0,66
ZFINANCE_DASHBOARD	GENERAL		8	4,08	0,00	0,00	0,00	0,66
ZFINANCE_DASHBOARD	Z_ZPU_M05_Q510	ZPU_M05	8	6,57	0,63	0,16	0,00	0,00
ZFINANCE_DASHBOARD	Z_ZPU_M05_Q500	ZPU_M05	8	4,18	0,56	0,06	0,00	0,00
ZFINANCE_DASHBOARD	Z_ZPU_M05_Q501	ZPU_M05	8	3,62	0,48	0,05	0,00	0,00
ZFINANCE_DASHBOARD	Z_ZPU_M05_Q502	ZPU_M05	8	3,53	0,47	0,05	0,00	0,00
ZFINANCE_DASHBOARD	Z_ZPU_M05_Q503	ZPU_M05	8	3,73	0,49	0,05	0,00	0,00
ZFINANCE_DASHBOARD	Z_ZPU_M05_Q504	ZPU_M05	8	3,53	0,47	0,04	0,00	0,00
ZFINANCE_DASHBOARD	Z_ZPU_M05_Q505	ZPU_M05	8	3,56	0,48	0,04	0,00	0,00
ZFINANCE_DASHBOARD	Z_ZPU_M05_Q506	ZPU_M05	8	3,86	0,48	0,04	0,00	0,00
ZFINANCE_DASHBOARD	Z_ZPU_M05_Q507	ZPU_M05	8	19,13	2,66	0,21	0,00	0,00
ZFINANCE_DASHBOARD	Z_ZPU_M01_Q500	ZPU_M01	8	7,52	1,05	0,11	0,00	0,00
ZFINANCE_DASHBOARD	Z_ZPU_M05_Q508	ZPU_M05	8	6,02	0,77	0,05	0,00	0,00
ZFINANCE_DASHBOARD	Z_ZPU_M01_Q501	ZPU_M01	8	21,96	3,37	0,10	0,00	0,00
ZFINANCE_DASHBOARD	Z_ZSL_C01_Q500	ZSL_C01	8	8,70	1,29	0,04	0,00	0,00

Queries of top Template 2

Template	Query name	InfoCube	# Steps	Runtime [%]	Avg. DB time [s]	Avg. OLA P time [s]	Avg. Time Rendering [s]	Template Prepare Time [s]
Z_ADMIN_COCKPIT	Total		2	100,00	17,14	1,34	0,00	0,75
Z_ADMIN_COCKPIT	GENERAL		2	3,75	0,00	0,00	0,00	0,75
Z_ADMIN_COCKPIT	0TCT_MC25_Q0105	0TCT_MC25	4	17,61	1,36	0,25	0,00	0,00
Z_ADMIN_COCKPIT	Z_0TCT_MCA1_Q0141	0TCT_MCA1	2	4,55	0,51	0,22	0,00	0,00

Queries of top Template 2

Template	Query name	InfoCube	# Steps	Runtime [%]	Avg. DB time [s]	Avg. OLAP time [s]	Avg. Time Rendering [s]	Template Prepare Time [s]
Z_ADMIN_COCKPIT	Z_OTCT_MCA1_Q0142	OTCT_MCA1	2	8,32	1,33	0,13	0,00	0,00
Z_ADMIN_COCKPIT	Z_OTCT_MC25_Q0500	OTCT_MC25	2	1,70	0,18	0,09	0,00	0,00
Z_ADMIN_COCKPIT	Z_OTCT_MC12_Q0100	OTCT_MC12	2	64,08	12,40	0,39	0,00	0,00

Queries of top Template 3

Template	Query name	InfoCube	# Steps	Runtime [%]	Avg. DB time [s]	Avg. OLAP time [s]	Avg. Time Rendering [s]	Template Prepare Time [s]
OTCT_MCA1_QY0142	Total		1	100,00	0,22	0,38	0,00	0,19
OTCT_MCA1_QY0142	GENERAL		1	21,35	0,00	0,00	0,00	0,19
OTCT_MCA1_QY0142	OTCT_MCA1_QY0142	OTCT_MCA1	1	78,65	0,22	0,38	0,00	0,00

15.2.2 BW Workload

15.2.2.1 Workload per User and Navigation Steps

This overview takes into account the following:

- The number of users who execute queries independent of the statistical settings (grand total)
- This number is grouped according to InfoConsumer, Executive, and Power User (totals), depending on their number of navigation steps
- The InfoConsumer is divided again according to the number of navigation steps (subtotals).
- The timeframe is the last full week from Monday to Sunday.

User/Consumer	Number
Grand total: Users performing queries	24
Total: Info Consumer [1 - 400 Nav Steps/ week]	24
...Sub total: Info Consumer 1-10 Nav Steps/ week	17
...Sub total: Info Consumer 11-50 Nav Steps/ week	5
...Sub total: Info Consumer 51-100 Nav Steps/ week	2
...Sub total: Info Consumer 101-200 Nav Steps/ week	0

User/Consumer	Number
...Sub total: Info Consumer 201-300 Nav Steps/ week	0
...Sub total: Info Consumer 301-400 Nav Steps/ week	0
Total: Executive [401 - 1200 Nav Steps/ week]	0
Total: Power User [> 1200 Nav Steps/ week]	0

15.2.2.2 Reporting and Upload Workload last week

The diagram above shows an overview of the workload distribution with regard to reporting and upload activities from the last week. Note that the values shown do not reflect the actual values. In each case, we have taken the highest value and considered it to be "100". The other values show the ratio to the maximum values.

Maximum values are listed below.

Note that the minimum requirement is ST-A/PI 01I*. If this has not been applied, no upload activity will be shown in the diagram. If even ST-A/PI 01G* has not been applied, no reporting activities can be measured.

Max. # Navigation Steps	Max. # Uploads
53	51

15.2.3 Analysis of Query Definition

# Queries	# Queries with Read Mode 'A'	# Queries with Read Mode 'X'	# Queries with Read Mode 'H'
457	0	44	413

You use the read mode "Query to read when you navigate or expand hierarchies" for all of your queries.

Recommendation

Design suitable aggregates for your queries. Make sure that newly created queries use the correct read mode.

Consequences

If you use the read mode "Query to read when you navigate or expand hierarchies" and no suitable aggregates are available, performance may be worse than when using the read mode "Query to read data during navigation". It is therefore very important that you create the appropriate aggregates for the read mode "Query to read when you navigate or expand hierarchies".

If a query uses no hierarchies, there is no difference between these two read modes.

Background

When a user navigates through a report, data can be read from the database in three different ways (the read modes depend on the Customizing settings):

1. Query to read all data at once
2. Query to read data during navigation
3. Query to read when you navigate or expand hierarchies

The first read mode (Query to read all data at once) may cause unnecessary data to be read from the database, decreasing the performance of your queries, so you should only use this read mode in special situations.

Note

In most cases, the most appropriate read mode is "Query to read when you navigate or expand hierarchies". You have to adjust the design of the aggregates for this read mode so that expanding hierarchies does not cause the same data to be read again.

15.2.4 Analysis of OLAP Cache

The OLAP Cache is used for duplicated storing of query results that are often used, whereby these query results can be accessed quickly.

The tables below contain information about the size and the usage of the OLAP Cache.

15.2.4.1 Cache usage of queries

Defined Queries

The OLAP cache can buffer results from queries and provide them again for different users and similar queries (that is, the same queries or real subsets of them). The OLAP cache therefore reduces the workload of the DB server and decreases the response time.

The OLAP cache can store the query results with their navigation statuses in the memory of the application server; the data can also be stored in database tables and files.

When the main memory buffer (located in the export/import shared memory) overruns, the displaced data is either removed or, depending on the persistence mode, stored on the database server.

The following OLAP cache modes exist in your system:

I Inactive

O Local Cache

D Database Cache (Default)

Default Cache Mode

In most cases, the optimal cache mode will be the system default.

MODE I - Cache is Inactive

Neither the global nor the local cache is used when selecting this cache mode. Every navigation step of a query will result in an InfoProvider access.

MODE O - Local Cache

All data is read from the relevant InfoProvider and only the local cache (for navigation of the executed query, for example) is used.

MODE D - Database Cache (default)

The cache data is persistent in database tables. In this mode, no data is displaced and the memory size is not limited. This method requires more space but it is also the most efficient one.

Number of Queries per Cache Mode

Cache Mode	# Queries
Total	458

Number of Queries per Cache Mode

Cache Mode	# Queries
[0] Local Cache	21
[D] Database	384
[] InfoProvider Setting	53

Number of InfoCubes per Cache Mode

Cache Mode	# Infocubes
[0] Local Cache	20
[D] Database	82
[] System Default (D)	4

Cache mode conversion in BW 7.40

As of SAP BW 7.40, there is only one OLAP cache mode (D), which makes use of the global OLAP cache. All queries and InfoProviders that were formerly configured to use the global cache (former cache modes 1-5) will be executed with cache mode D, even though they still show the old OLAP cache modes in their metadata.

Therefore, the value for cache mode "D" in the tables above represents the sum of all cache modes (1-5 & D) that use the global OLAP cache.

Currently, 215 of your queries and 15 of your InfoProviders are still set up to use the "old" OLAP cache settings (that is, prior to SAP BW 7.40).

Executed Queries

The following table provides an overview of the number of navigation steps executed and shows how many query results the OLAP cache was able to provide/ how often the database had to be accessed. Note that RSDI queries cannot be stored in the OLAP cache and are, therefore, listed separately in the table.

Task type	# Query Executions	Accessed DB [%]	Accessed Cache [%]	RSDRI Queries [%]
All Queries	594	100	0	0

There are two types of caches: The local cache and the transactional cache (OLAP cache). The local cache belongs to a query session and therefore cannot be used by other sessions. The OLAP cache can store query data on the application server and can have a swap file or use a swap cluster table.

The OLAP memory cache is located in the Export/Import buffer SHM (parameter rsdb/esm/buffersize_kb). Since the global cache size is a logical value and the Export/Import SHM gives a physical limit, and also considering that other applications (such as BCS) might use the Export/Import SHM, we recommend that you set the global cache parameter maximally to 90% of the Export/Import SHM buffer.

Rating	Description	Current Value	Recommendation
	Cache active	Active	Active

Rating	Description	Current Value	Recommendation
	Cache Persistence Mode		N/A
	Flat File Name		N/A
	Comprehensive Flat File Name for AppServer		N/A
	Local Cache Size (MB)	0	N/A
	Global Cache Size (MB)	0	Please check SAP Notes 656060 and 702728.
	Exp/Imp SHM (KB) on Instance aocapw06b_BWP_00	200000	200000

Recommendation:

Check your cache settings carefully using transaction RSRCACHE or RSCUSTV14. We recommend that you set the OLAP cache to active and the global cache size to 90% of the size of the Export/Import SHM buffer. Please note that the global cache size is defined in MB while the Export/Import SHM buffer parameter is configured in KB.

15.3 BW Warehouse Management

15.3.1 Upload Statistics

15.3.1.1 Number of weekly requests

Week	Requests to source	Requests to myself	Requests schedule w/o Process Chain	Requests scheduled by a Process Chain	Total
01/2020	350	197	0	547	547
52/2019	349	197	0	546	546
51/2019	436	197	0	633	633
50/2019	454	197	2	649	651
49/2019	436	197	0	633	633
48/2019	263	197	0	460	460
47/2019	436	197	0	633	633

15.3.1.2 Number of weekly received records

Records sent to BW by external source

Week	PSA and the into Data Targets	PSA and Data Targets in parallel	Only PSA	Data Targets Only	Total number of records
01/2020	0	0	15.997.343	0	15.997.343
52/2019	0	0	15.939.330	0	15.939.330
51/2019	0	0	19.900.691	0	19.900.691
50/2019	0	0	27.132.473	0	27.132.473
49/2019	0	0	19.737.954	0	19.737.954
48/2019	0	0	11.813.425	0	11.813.425
47/2019	0	0	19.513.235	0	19.513.235

Records sent to BW internally (DataMart - MySelf Connection)

Week	PSA and the into Data Targets	PSA and Data Targets in parallel	Only PSA	Data Targets Only	Total number of records
01/2020	0	0	286.759	0	286.759
52/2019	0	0	292.114	0	292.114
51/2019	0	0	401.052	0	401.052
50/2019	0	0	373.081	0	373.081
49/2019	0	0	393.643	0	393.643
48/2019	0	0	329.416	0	329.416
47/2019	0	0	340.850	0	340.850

Records sent by source system

Week	Logical system name	Source Type	Total records
01/2020	BWPCCLNT100	M	286.759
01/2020	P01100	3	15.997.343
52/2019	BWPCCLNT100	M	292.114
52/2019	P01100	3	15.939.330
51/2019	BWPCCLNT100	M	401.052
51/2019	P01100	3	19.900.691
50/2019	BWPCCLNT100	M	373.081
50/2019	P01100	3	27.132.473
49/2019	BWPCCLNT100	M	393.643
49/2019	P01100	3	19.737.954
48/2019	BWPCCLNT100	M	329.416
48/2019	P01100	3	11.813.425
47/2019	BWPCCLNT100	M	340.850
47/2019	P01100	3	19.513.235

15.3.1.3 Transactional data load statistics (RSDDSTATWHM)

This section provides an overview of the execution of InfoPackages that do not only load into PSA but also (or only) into InfoProviders. Only transactional data uploads are taken into account.

We could not detect any uploads of transactional data from 30.12.2019 to 06.01.2020. This means that either no such InfoPackage was executed in the analyzed period or that the statistics are not properly collected in the system. To rule out the latter, check the activation status of the BW WHM statistics as described below.

Collection of BW Statistics

Call the Administrator Workbench (transaction RSA1) and choose Tools -> "Settings for BI Statistics", or call transaction RSDDSTAT:

--> Switch to the InfoProvider tab and activate the statistics settings.

15.3.1.4 Top DTP Load

The following table provides an overview of the load caused by data transfer processes in your BW system during the past week.

Note that the cumulated times displayed may be larger than the total times. When cumulated times are calculated, all times are added together, whereas parallel processing is considered when total times are calculated.

Total

# Sources	# Targets	# Requests	Time Total	Time Total Cum.	Time Source	Time Errorfilter	Time Transformation	Time Target	# recs. Source	# recs. Target
87	93	722	01:05:07	01:38:48	00:23:26	00:02:39	00:51:44	00:20:58	19.371.309	16.955.983

Source Systems

Source System	Source Type	# Sources	# Targets	# Requests	Time Total	Time Total Cum.	Time Source	Time Target	# recs. Source	# recs. Target
P01100	3	45	45	339	00:42:52	01:17:17	00:19:54	00:06:22	16.094.310	13.989.044
BWPCCLNT100	M	42	48	383	00:22:15	00:21:31	00:03:32	00:14:36	3.276.999	2.966.939

Sources

Source	Source System	Source Type	# Targets	# Requests	Time Total	Time Total Cum.	Time Source	Time Target	# recs. Source	# recs. Target
ZBW_CONTRACT_DOC	P01100	DTAS RC	1	4	00:27:14	01:11:20	00:18:15	00:04:50	13.639.712	13.639.712
OVENDOR_ATTR	P01100	DTAS RC	1	8	00:06:29	00:02:25	00:00:34	00:00:00	629.751	0
ZDS_C04	BWPCCLNT100	ODSO	1	4	00:05:58	00:05:53	00:00:04	00:05:46	92.152	92.152
ZFISL_01	BWPCCLNT100	ODSO	9	72	00:04:34	00:03:20	00:00:37	00:02:33	120.665	43.129
OTCT_DS14	BWPCCLNT100	DTAS RC	1	7	00:02:46	00:05:59	00:01:27	00:02:27	2.641.317	2.629.956
OVENDOR_TEXT	P01100	DTAS RC	1	8	00:02:09	00:00:20	00:00:12	00:00:00	629.751	0
ZFC_OP_01	P01100	DTAS RC	1	2	00:01:08	00:01:08	00:00:00	00:01:03	27.474	27.474

Sources

Source	Source System	Source Type	# Targets	# Requests	Time Total	Time Total Cum.	Time Source	Time Target	# recs. Source	# recs. Target
0TCT_DS21	BWPCLNT100	DTASRC	1	7	00:00:53	00:00:53	00:00:00	00:00:52	2.830	2.830
ZPU_O32	BWPCLNT100	ODSO	1	8	00:00:44	00:00:38	00:00:04	00:00:31	43.278	27.973
0TCT_DS22	BWPCLNT100	DTASRC	1	7	00:00:42	00:00:42	00:00:00	00:00:39	12.161	12.090

Targets

Target	Target Type	# Sources	# Requests	Time Total	Time Total Cum.	Time Source	Time Target	# recs. Source	# recs. Target
ZDS_C06	ODSO	1	4	00:27:14	01:11:20	00:18:15	00:04:50	13.639.712	13.639.712
0VENDOR	IOBJA	1	8	00:06:29	00:02:25	00:00:34	00:00:00	629.751	0
ZPSCD_C04	CUBE	1	4	00:05:58	00:05:53	00:00:04	00:05:46	92.152	92.152
0TCT_C14	CUBE	1	7	00:02:46	00:05:59	00:01:27	00:02:27	2.641.317	2.629.956
0VENDOR	IOBJT	1	8	00:02:09	00:00:20	00:00:12	00:00:00	629.751	0
ZPSCD_C01	CUBE	1	2	00:01:08	00:01:08	00:00:00	00:01:03	27.474	27.474
ZPU_C01	CUBE	4	32	00:01:07	00:00:55	00:00:10	00:00:39	82.453	64.479
0TCT_C21	CUBE	1	7	00:00:53	00:00:53	00:00:00	00:00:52	2.830	2.830
ZSLC0213	CUBE	1	8	00:00:45	00:00:35	00:00:04	00:00:30	20.102	7.245
0TCT_C22	CUBE	1	7	00:00:42	00:00:42	00:00:00	00:00:39	12.161	12.090

Targets - Open Hub Destination

Target	Target Type	# Sources	# Requests	Time Total	Time Total Cum.	Time Source	Time Target	# recs. Source	# recs. Target
ZBUD_ACTL	DEST	1	1	00:00:13	00:00:13	00:00:07	00:00:00	13.895	13.895
ZOH_SLC01	DEST	1	1	00:00:03	00:00:03	00:00:03	00:00:00	8.519	8.519

15.3.1.5 Top Requests per Number of Data Packages

The table below provides an overview of the number of data packages used by the requests started last week.

Note

The more data packages created for a request, the worse the system performance during the

loading job. We recommend that you do not create more than 1000 data packages per request. For more information, see [SAP Note 892513](#).

Request ID	# Data Packages	Source
REQU_ATLCOWTUL1YLV0089LFY60Q4Z	567	ZBW_CONTRACT_DOC <P01100>
REQU_EAQXA5RYAO6G4V3CT3B2TMWCZ	567	ZBW_CONTRACT_DOC <P01100>
REQU_1A20IQXZVTL8A92NYFIKVXTG3	566	ZBW_CONTRACT_DOC <P01100>
REQU_8X83ZO6IXYAUQZKHWTNICG577	566	ZBW_CONTRACT_DOC <P01100>
DTPR_CURTMXTAIPHID73LRRKKRSQXF	69	ZBW_CONTRACT_DOC <P01100>
DTPR_7VUPDJOP6N482MDMGS3USCZF7	69	ZBW_CONTRACT_DOC <P01100>
DTPR_706LEV6X30NLVEKW0V3NGSTW3	69	ZBW_CONTRACT_DOC <P01100>
DTPR_7R69IHOJWS9SU7UIDBT8YWKLTV	69	ZBW_CONTRACT_DOC <P01100>
REQU_3ZN8WJYLWQW2BQYBXHWJ32QMR	14	OVENDOR_ATTR <P01100>

15.3.2 Top InfoProviders

15.3.2.1 Top InfoProviders per total number of requests

We detected at least one InfoProvider containing a very high number of requests. This can lead to performance problems for request administration when the request control information is checked. The runtime for request administration can grow up to several minutes.

Follow the instructions in [SAP Note 620361](#) to avoid this problem. The more requests an InfoProvider contains, the higher the runtime.

If you have loaded thousands of master data requests into an InfoObject, you cannot get rid of these request as in the DSO scenario (described in [SAP Note 620361](#)) where content would be copied back and forth to a replica of the object. However, in such a scenario, you can use report RSSM_AUTODEL_REQU_MASTER_TEXT to get rid of the request status information as described in [SAP Note 1143710](#). [SAP Notes 1357455](#) and [1378477](#) should also be implemented. Report RSSM_AUTODEL_REQU_MASTER_TEXT can also be scheduled on a regular basis if you perform a high number of master data uploads per day.

InfoProvider	Type	Requests
ZPU_C01	InfoCube	16.255

15.3.3 Process Chains - Runtime Overview

The process chain runtime analysis is based on the last 7 days before the download. The table contains statistical information of all chains that were not started by another (local) process chain. This includes process chains that are started by the service API or remotely by a chain from another system. Note that only the top 20 chains with the longest runtimes are displayed.

The '# Total Subchains' and '# Total Steps' columns represent the summarized values of the main chain and its subchains. The runtimes have a range from the start of the main chain up to the end of the last process type executed within the main chain and its subchains. This means that the real runtime of the main chain and its subchains is displayed here.

Main Chain	#Total Sub chains	#Total Steps	#Runs	Total Run time [min]	Avg. Run time [min]	Med. Run time [min]	Avg. Proc.Type Runt. [min]
ZTRANSACTION_DATA_1	19	254	4	213	54	54	54
ZFM_METACHAIN	5	126	8	123	16	15	16
ZPSCD_METACHAIN	2	42	4	118	30	30	30
ZTRANSACTION_DATA_3	32	419	4	91	23	23	23
Z_FISL_DAILY	2	59	8	56	8	7	8
ZTECH_1	6	101	7	54	8	7	8
ZTECH_METACHAIN	5	99	7	54	8	7	8
ZMAINTENANCE_1	7	24	1	10	10	10	10
ZMONTHLY_MAINT_META	6	22	1	10	10	10	10
ZTECH_2	1	8	1	5	5	5	5
ZPSCD_OPEN_ITEMS_MONTHLY	1	8	1	2	2	2	2
ZPSCD_OPEN_ITEMS_WEEKLY	2	14	1	2	2	2	2
ZPS_OPENHUB	0	3	1	1	1	1	1

The following table displays the statistical information based on the actual chain hierarchy defined. The "# Subchains" and "# Steps" columns refer to the entry in the "Chain" column.

Only the top three main process chains with the highest number of executions are displayed. For each main process chain, the (maximum) ten subchains with the highest runtimes are shown.

Parent Chain	Level	Chain	# Sub chains	# Steps	# Runs	Total Runtime [min]	Avg. Runtime [min]	Med. Runtime [min]	Avg. Proc. Type Runtime [min]
	0	ZTRANSACTION_DATA_1	3	4	4	213	54	54	54
ZTRANSACTION_DATA_1	1	ZFM_METACHAIN	3	4	8	123	16	15	16
ZTRANSACTION_DATA_1	1	ZPSCD_METACHAIN	2	3	4	118	30	30	30
ZTRANSACTION_DATA_1	1	ZMMPUR_META	9	13	8	62	8	8	10
ZPSCD_METACHAIN	2	ZPC_ZPSCD_C04	0	15	4	109	28	28	31
ZFM_METACHAIN	2	Z_FISL_DAILY	2	10	8	56	8	7	8
ZFM_METACHAIN	2	ZPC_FI_ZPU_C01	0	22	8	49	7	6	10
ZMMPUR_META	2	ZMMPUR_INFOPROVIDERS	0	31	8	19	3	3	6
ZFM_METACHAIN	2	ZPC_FI_MD	0	41	8	18	3	3	6
ZMMPUR_META	2	ZMMPUR_MD	0	10	8	17	3	3	3
	0	ZFM_METACHAIN	3	4	8	123	16	15	16
ZFM_METACHAIN	1	Z_FISL_DAILY	2	10	8	56	8	7	8
ZFM_METACHAIN	1	ZPC_FI_ZPU_C01	0	22	8	49	7	6	10
ZFM_METACHAIN	1	ZPC_FI_MD	0	41	8	18	3	3	6
Z_FISL_DAILY	2	ZSLC02_LOADCHAIN_1	0	44	8	33	5	5	11
Z_FISL_DAILY	2	FISL_FUND_CONDITION	0	5	8	7	1	1	1
	0	ZPSCD_METACHAIN	2	3	4	118	30	30	30

Parent Chain	Level	Chain	# Sub chains	# Steps	# Runs	Total Runtime [min]	Avg. Runtime [min]	Med. Runtime [min]	Avg. Proc. Type Runt. [min]
ZPSCD_METACHAIN	1	ZPC_ZPSCD_C04	0	15	4	109	28	28	31
ZPSCD_METACHAIN	1	ZPC_PSCD_DELTA_MD	0	24	4	10	3	3	3

15.3.4 Change-Run Analysis

The table below shows the 10 most expensive change runs of the last seven days. It displays their runtime (rounded up to whole minutes) as well as the number of affected InfoObjects, hierarchies, and InfoCubes.

Starttime	Total Runtime [min]	# InfoObjects	# Hierarchies	# InfoCubes
31.12.2019 09:02:34	1	1	2	1
31.12.2019 20:02:36	1	1	2	1
02.01.2020 09:02:37	1	1	2	1
30.12.2019 20:02:34	1	2	2	1
02.01.2020 20:02:52	1	1	2	1
03.01.2020 09:02:59	1	1	2	1
03.01.2020 20:03:11	1	1	2	1
06.01.2020 09:03:13	1	1	2	1
30.12.2019 20:16:56	1	1	0	0
31.12.2019 09:16:41	1	1	0	0

The table below shows information about change runs executed during the last 10 weeks, aggregated by calendar week. It displays their number and total runtime (rounded up to whole minutes).

Week	# Change-Runs	Total Runtime [min]
01.2020	13	1
52.2019	16	1
51.2019	20	2
50.2019	20	2
49.2019	20	2
48.2019	11	1
47.2019	19	2
46.2019	17	2
45.2019	20	2
44.2019	17	1

15.3.5 Source System Overview

Source System Release Information

The tables below contain information about the source systems attached to the analyzed BW system. The first table lists all source systems, regardless of their type. The second table shows detailed release information about R/3 source systems while the third table is dedicated to BW source systems, which potentially include the analyzed system itself (data mart). If one of the last two tables is missing, there are no source systems of the respective type.

Attached Source Systems

Logical System Name	Type	Status
BWPCLNT100	Datamart	active
EXTRNLFILE	Flat file	active
P01100	R/3	active

R/3 Source Systems

Logical System Name	Release	Plug-In Type	Plug-In Version	Plug-In Patch	HR Patch	ABA Patch	Basis Patch
P01100	617 0018	PI_BASIS	740	0022	608 0072	740 0022	740 0022

BW Source Systems

Logical System Name	Release	Support Pack	ABAP Patch	Basis Patch
BWPCLNT100	740	0022	740 0022	740 0022

Data Transfer Customizing

Customization of SAP Source Systems

Data transfer settings of all SAP source systems attached to the analyzed BW system are maintained in transaction SBIW and stored in table ROIDOCPRMS. These settings influence data package size, the frequency of InfoIDocs, and, depending on the transfer method, the number of processes used for the data transfer. If no values are maintained in ROIDOCPRMS, the system uses hard-coded default values.

Data Transfer Settings of SAP Source Systems

Source System	MAXSIZE	MAXLINES	STATFRQU	MAXPROCS
BWPCLNT100	0	0	0	0
P01100	0	0	0	0

MAXSIZE [kB] and MAXLINES [#] control the maximum size of a data package. Whichever of the two limitations is reached first controls the actual size of the data packages. While the default for MAXLINES (100,000) is reasonable in most cases, the default for MAXSIZE (10,000 kB) leads to large numbers of rather small data packages. The current standard recommendation is approximately 50,000 (kB). Generally, both values should be low enough to prevent memory issues when processing a data package and to allow some degree of parallelism and high enough to avoid the creation of too many data packages.

Note that it is not mandatory for extractors to comply with these limitations. Nevertheless, the overwhelming majority of SAP DataSources do so. Whether your own developments take these parameters into account depends on your coding.

STATFRQU controls the frequency of InfoIDocs containing statistical information about loading that are sent while the InfoPackage is being processed. A value of X means that one InfoIDoc is sent after each Xth data package. The default value of 1 leads to an IDoc processing overhead; our standard recommendation is 10.

MAXPROCS determines how many dialog processes are maximally used by each InfoPackage to send the prepared data packages to the BW system. Whether this parameter is taken into account, however, depends on the release and the settings of the source system. In most cases, this parameter is only relevant for InfoPackages that upload not only into PSA, but also (or only) into data targets. This method of transferring data packages is usually referred to as SBIW-controlled or SAPI-controlled. The default value of 2 may easily result in a bottleneck, especially if the time needed by the extractor to prepare a data package is less than the time needed to send and process it in the BW system.

The number of maximal processes for InfoPackages loading only into PSA is usually limited by the configuration in transaction SMQS (trFC scheduler). While MAXPROCS limits the number of processes per InfoPackage, SMQS limits the number of concurrent connections between the source and the BW system, that is, the total number of processes that all concurrently executed InfoPackages may use. Here, the default value of 2 can also have a negative effect on extraction performance.

For more information about the two different loading methods, see [SAP Note 1163359 - Load methods using SMQS or SAPI-controlled to transfer to BW](#).

To make sure that your SBIW configurations do not have a negative effect on the performance of your InfoPackages, we checked data transfer settings for all attached source systems.

Customization of Flat File DataSources

Data transfer settings for flat file uploads are customized in transaction RSCUSTV6 and stored in table RSADMINC. You can control the maximum number of records per data package (Package Size) as well as the InfoIDoc frequency (FrequencyStatus-IDOC).

Data Transfer Settings for Flat File Source Systems

Source System	IDOCPACKSIZE	INFOIDOCFRQ
EXTRNLFILE	1.000	10

Verification of Data Transfer Settings

To avoid potential extraction problems, adjust the data transfer settings in the respective source systems as indicated in the tables below. Note that we strongly recommend changes if the settings are lower than expected, unless you experience memory issues with higher values. If, on the other hand, the recommendation table suggests decreasing certain parameters but you do not face any of the related problems described above (memory dumps, no parallelism), please ignore this particular recommendation.

Implementation

a) For SAP source systems, you can change the data transfer settings centrally from the BW system within transaction RSA1. In the 'Source Systems' area, right-click the particular system and choose "Customizing Extractors", which calls transaction SBIW in the selected system. There, choose "General Settings" --> "Maintain Control Parameters for the Data Transfer". Obviously, you can also call transaction SBIW directly in the source systems.

b) For flat file source systems, use transaction RSCUSTV6 in your BW system.

Source System	Parameter	Current value	Recommended value
BWPCNT100	Max. (kB)	0	50.000
BWPCNT100	Frequency	0	10
BWPCNT100	Max. proc.	0	5
P01100	Max. (kB)	0	50.000
P01100	Frequency	0	10
P01100	Max. proc.	0	5

Recommendations for Flat File Source Systems

Source System	Parameter	Current value	Recommended value
EXTRNLFILE	Package Size	1.000	50.000

16 Database server load from expensive SQL statements - BWP



The SQL statements identified did not lead to performance problems. The load overview is listed in the table below for reference, and further details of the most expensive statements are included at the end of the section.

Load From Expensive Statements

Impact	CPU Load [%]	I/O Load [%]	Elapsed Time [%]
HIGH	74,55	89,54	70,00

The table above shows the cumulative load of the top statements from cache based on elapsed database time. If the database was active for less than one day before the analysis was performed, the information provided may not be entirely accurate.

Note: The overall section rating is linked to the above table rating; the ratings are described in [SAP Note 551646](#).

If the table impact is HIGH, there are SQL statements that cause a significant percentage of the overall load on your SAP system.

If the table impact is MEDIUM, there are SQL statements that cause a significant percentage of the overall load on your SAP system.

If the table impact is LOW, your system SQL statement cache contains no significant problems.

If the table impact is N/A, the cache utilization, system load (dialog steps or total reads) was too low, or some analysis data was unavailable.

The following table lists the load of each SQL statement individually. The load of the statement is evaluated against the total load since database startup. If an object name in this table contains the character "/", it may indicate a join. If such an object is not in the ABAP Dictionary (transaction SE12) with the object name listed, check for each part of the join (items separated by "/").

16.1 Cache Analysis On 06.01.2020

Expensive Statements Overview

Object Name	CPU Load [%]	I/O Load [%]	Elapsed Time [%]	Total Executions	Records Processed
EDIDC	11,42	13,77	10,00	62.592	0
EDIDC	11,42	13,77	10,00	62.592	26
EDIDC	11,42	13,77	10,00	62.592	4.896.102
EDIDC	11,42	13,77	10,00	62.592	1
EDIDC	8,56	10,33	8,00	46.944	0
EDIDC	5,71	6,89	5,00	31.296	27.382.919
EDIDC	5,71	6,89	5,00	31.296	0
EDIDC	5,71	6,89	5,00	31.296	0

Expensive Statements Overview

Object Name	CPU Load [%]	I/O Load [%]	Elapsed Time [%]	Total Executions	Records Processed
RSMONMESS	0,33	0,02	5,00	5.562.333	479.880.819
EDIDC	2,85	3,44	2,00	15.648	0

16.1.1 Access on EDIDC

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	62.592	3.060.689.004	69.136.412	3.061.136.457	0

```
SELECT
"MANDT", "DOCNUM", "STATUS", "UPDDAT", "UPDTIM"
FROM
"EDIDC" WHERE "MANDT"=:A0 AND "UPDDAT">:A1 AND "DIRECT"=:A2 AND "STATUS" IN
(:A3, :A4, :A5)
Execution Plan From: V$SQL_PLAN sql_id: 87gkhu183hmuj
SELECT STATEMENT Estimated Costs= 7,322 Estimated Rows= 0
Optimizer: ALL_ROWS
1 TABLE ACCESS FULL EDIDC
Estimated Costs= 7,322 Estimated Rows= 43,773
Filter predicates:
("UPDDAT">:A1 AND "DIRECT"=:A2 AND "MANDT"=:A0 AND INTERNAL_FUNCTION("STATUS"))
Estim. Bytes: 1,838,466
Estim. CPU-Costs = 2,329,186,058 Estim. IO-Costs = 7,229
```

Program Name	Line	Created By	Last Changed By	Last Changed On
LBDMONU15	96	SAP	SAP	03.06.2015

```
000084 IF time = '00000000'.
000085 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000086 OF TABLE i_edidc WHERE
000087 mandt = mandt AND
000088 direct = 1 AND
000089 status IN status AND
000090 rcvprt IN partyp AND
000091 rcvprn IN parnum AND
000092 rcvpfc IN parfct AND
000093 mestyp IN mestypa.
000094
000095 ELSE.
000096 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000097 OF TABLE i_edidc WHERE
000098 mandt = mandt AND
000099 upddat > time AND
000100 direct = 1 AND
000101 status IN status AND
000102 rcvprt IN partyp AND
000103 rcvprn IN parnum AND
000104 rcvpfc IN parfct AND
```

```

000105 mestyp IN mestypa.
000106 ENDIF.
000107 PERFORM check_statold TABLES i_edidc USING statolda count.
000108
000109 ELSE.
000110 * Inbound
000111 IF time = '00000000'.
000112 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000113 OF TABLE i_edidc WHERE
000114 mandt = mandt AND
000115 direct = 2 AND
000116 status IN statusss AND
000117 sndprt IN partyp AND

```

16.1.2 Access on EDIDC

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	62.592	3.060.688.972	69.065.983	3.061.136.209	26

```

SELECT
"MANDT","DOCNUM","STATUS","UPDDAT","UPDTIM"
FROM
"EDIDC"WHERE "MANDT"=:A0 AND "UPDDAT">:A1 AND "DIRECT"=:A2 AND "STATUS" IN
(:A3,:A4,:A5,:A6,:A7,:A8,:A9,:A10)
Execution Plan From: V$SQL_PLAN sql_id: 378fjff6kx2y2m
SELECT STATEMENT Estimated Costs= 7,322 Estimated Rows= 0
Optimizer: ALL_ROWS
1 TABLE ACCESS FULL EDIDC
Estimated Costs= 7,322 Estimated Rows= 43,773
Filter predicates:
("UPDDAT">:A1 AND "DIRECT"=:A2 AND "MANDT"=:A0 AND INTERNAL_FUNCTION("STATUS"))
Estim. Bytes: 1,838,466
Estim. CPU-Costs = 2,330,875,344 Estim. IO-Costs = 7,229

```

Program Name	Line	Created By	Last Changed By	Last Changed On
LBDMONU15	96	SAP	SAP	03.06.2015

```

000084 IF time = '00000000'.
000085 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000086 OF TABLE i_edidc WHERE
000087 mandt = mandt AND
000088 direct = 1 AND
000089 status IN statusss AND
000090 rcvprt IN partyp AND
000091 rcvprn IN parnum AND
000092 rcvpfc IN parfct AND
000093 mestyp IN mestypa.
000094
000095 ELSE.
000096 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000097 OF TABLE i_edidc WHERE
000098 mandt = mandt AND
000099 upddat > time AND

```

```

000100 direct = 1 AND
000101 status IN statusss AND
000102 rcvprt IN partyt AND
000103 rcvprn IN parnum AND
000104 rcvpfc IN parfct AND
000105 mestyp IN mestypa.
000106 ENDIF.
000107 PERFORM check_statold TABLES i_edidc USING statolda count.
000108
000109 ELSE.
000110 * Inbound
000111 IF time = '00000000'.
000112 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000113 OF TABLE i_edidc WHERE
000114 mandt = mandt AND
000115 direct = 2 AND
000116 status IN statusss AND
000117 sndprt IN partyt AND

```

16.1.3 Access on EDIDC

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	62.592	3.060.688.972	68.447.948	3.061.136.354	4.896.102

```

SELECT
"MANDT","DOCNUM","STATUS","UPDDAT","UPDTIM"
FROM
"EDIDC"WHERE "MANDT"=:A0 AND "UPDDAT">:A1 AND "DIRECT"=:A2 AND "STATUS" IN
(:A3,:A4,:A5,:A6,:A7,:A8,:A9,:A10,:A11,:A12)
Execution Plan From: V$SQL_PLAN sql_id: f945ryrka4pgf
SELECT STATEMENT Estimated Costs= 7,322 Estimated Rows= 0
Optimizer: ALL_ROWS
1 TABLE ACCESS FULL EDIDC
Estimated Costs= 7,322 Estimated Rows= 43,773
Filter predicates:
("UPDDAT">:A1 AND "DIRECT"=:A2 AND "MANDT"=:A0 AND INTERNAL_FUNCTION("STATU
S"))
Estim. Bytes: 1,838,466
Estim. CPU-Costs = 2,331,017,674 Estim. IO-Costs = 7,229

```

Program Name	Line	Created By	Last Changed By	Last Changed On
LBDMONU15	96	SAP	SAP	03.06.2015

```

000084 IF time = '00000000'.
000085 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000086 OF TABLE i_edidc WHERE
000087 mandt = mandt AND
000088 direct = 1 AND
000089 status IN statusss AND
000090 rcvprt IN partyt AND
000091 rcvprn IN parnum AND
000092 rcvpfc IN parfct AND
000093 mestyp IN mestypa.
000094

```

```

000095 ELSE.
000096 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000097 OF TABLE i_edidc WHERE
000098 mandt = mandt AND
000099 upddat > time AND
000100 direct = 1 AND
000101 status IN statusss AND
000102 rcvprt IN partyp AND
000103 rcvprn IN parnum AND
000104 rcvpfc IN parfct AND
000105 mestyp IN mestypa.
000106 ENDIF.
000107 PERFORM check_statold TABLES i_edidc USING statolda count.
000108
000109 ELSE.
000110 * Inbound
000111 IF time = '00000000'.
000112 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000113 OF TABLE i_edidc WHERE
000114 mandt = mandt AND
000115 direct = 2 AND
000116 status IN statusss AND
000117 sndprt IN partyp AND

```

16.1.4 Access on EDIDC

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	62.592	3.060.688.956	68.117.174	3.061.136.334	1

```

SELECT
"MANDT","DOCNUM","STATUS","UPDDAT","UPDTIM"
FROM
"EDIDC"WHERE "MANDT"=:A0 AND "UPDDAT">:A1 AND "DIRECT"=:A2 AND "STATUS"=:A3
Execution Plan From: V$SQL_PLAN sql_id: 2ynzhp9ttc2yz
SELECT STATEMENT Estimated Costs= 7,322 Estimated Rows= 0
Optimizer: ALL_ROWS
1 TABLE ACCESS FULL EDIDC
Estimated Costs= 7,322 Estimated Rows= 8,755
Filter predicates:
("UPDDAT">:A1 AND "STATUS"=:A3 AND "DIRECT"=:A2 AND "MANDT"=:A0)
Estim. Bytes: 367,710
Estim. CPU-Costs = 2,323,865,180 Estim. IO-Costs = 7,229

```

Program Name	Line	Created By	Last Changed By	Last Changed On
LBDMONU15	96	SAP	SAP	03.06.2015

```

000084 IF time = '00000000'.
000085 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000086 OF TABLE i_edidc WHERE
000087 mandt = mandt AND
000088 direct = 1 AND
000089 status IN statusss AND
000090 rcvprt IN partyp AND
000091 rcvprn IN parnum AND

```

```

000092 rcvpfc IN parfct AND
000093 mestyp IN mestypa.
000094
000095 ELSE.
000096 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000097 OF TABLE i_edidc WHERE
000098 mandt = mandt AND
000099 upddat > time AND
000100 direct = 1 AND
000101 status IN statusss AND
000102 rcvpprt IN partyt AND
000103 rcvprn IN parnum AND
000104 rcvpfc IN parfct AND
000105 mestyp IN mestypa.
000106 ENDIF.
000107 PERFORM check_statold TABLES i_edidc USING statolda count.
000108
000109 ELSE.
000110 * Inbound
000111 IF time = '00000000'.
000112 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000113 OF TABLE i_edidc WHERE
000114 mandt = mandt AND
000115 direct = 2 AND
000116 status IN statusss AND
000117 sndprt IN partyt AND

```

16.1.5 Access on EDIDC

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	46.944	2.295.516.876	55.791.066	2.295.855.314	0

```

SELECT
"MANDT","DOCNUM","STATUS","UPDDAT","UPDTIM"
FROM
"EDIDC"WHERE "MANDT"=:A0 AND "UPDDAT">:A1 AND "DIRECT"=:A2 AND "STATUS" IN
(:A3,:A4,:A5,:A6)
Execution Plan From: V$SQL_PLAN sql_id: gsbfp88wqd
SELECT STATEMENT Estimated Costs= 7,322 Estimated Rows= 0
Optimizer: ALL_ROWS
1 TABLE ACCESS FULL EDIDC
Estimated Costs= 7,322 Estimated Rows= 43,773
Filter predicates:
("UPDDAT">:A1 AND "DIRECT"=:A2 AND "MANDT"=:A0 AND INTERNAL_FUNCTION("STATUS"))
Estim. Bytes: 1,838,466
Estim. CPU-Costs = 2,329,834,552 Estim. IO-Costs = 7,229

```

Program Name	Line	Created By	Last Changed By	Last Changed On
LBDMONU15	96	SAP	SAP	03.06.2015

```

000084 IF time = '00000000'.
000085 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000086 OF TABLE i_edidc WHERE

```

```

000087 mandt = mandt AND
000088 direct = 1 AND
000089 status IN statusss AND
000090 rcvprt IN party AND
000091 rcvprn IN parnum AND
000092 rcvpfc IN parfct AND
000093 mestyp IN mestypa.
000094
000095 ELSE.
000096 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000097 OF TABLE i_edidc WHERE
000098 mandt = mandt AND
000099 upddat > time AND
000100 direct = 1 AND
000101 status IN statusss AND
000102 rcvprt IN party AND
000103 rcvprn IN parnum AND
000104 rcvpfc IN parfct AND
000105 mestyp IN mestypa.
000106 ENDIF.
000107 PERFORM check_statold TABLES i_edidc USING statolda count.
000108
000109 ELSE.
000110 * Inbound
000111 IF time = '00000000'.
000112 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000113 OF TABLE i_edidc WHERE
000114 mandt = mandt AND
000115 direct = 2 AND
000116 status IN statusss AND
000117 sndprt IN party AND

```

16.1.6 Access on EDIDC

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	31.296	1.530.344.478	36.659.800	1.530.568.199	27.382.919

```

SELECT
"MANDT","DOCNUM","STATUS","UPDDAT","UPDTIM"
FROM
"EDIDC"WHERE "MANDT"=:A0 AND "UPDDAT">:A1 AND "DIRECT"=:A2 AND "STATUS" IN
(:A3,:A4)
Execution Plan From: V$SQL_PLAN sql_id: c6h8vnjddkwz1
SELECT STATEMENT Estimated Costs= 7,322 Estimated Rows= 0
Optimizer: ALL_ROWS
1 TABLE ACCESS FULL EDIDC
Estimated Costs= 7,322 Estimated Rows= 29,182
Filter predicates:
("UPDDAT">:A1 AND "DIRECT"=:A2 AND INTERNAL_FUNCTION("STATUS") AND "MANDT"=:A0)
Estim. Bytes: 1,225,644
Estim. CPU-Costs = 2,327,191,942 Estim. IO-Costs = 7,229

```


Program Name	Line	Created By	Last Changed By	Last Changed On
LBDMONU15	123	SAP	SAP	03.06.2015

```

000111 IF time = '00000000'.
000112 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000113 OF TABLE i_edidc WHERE
000114 mandt = mandt AND
000115 direct = 2 AND
000116 status IN status AND
000117 sndprt IN party AND
000118 sndprn IN parnum AND
000119 sndpfc IN parfct AND
000120 mestyp IN mestype.
000121
000122 ELSE.
000123 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000124 OF TABLE i_edidc WHERE
000125 mandt = mandt AND
000126 upddat > time AND
000127 direct = 2 AND
000128 status IN status AND
000129 sndprt IN party AND
000130 sndprn IN parnum AND
000131 sndpfc IN parfct AND
000132 mestyp IN mestype.
000133 ENDIF.
000134 PERFORM check_statold TABLES i_edidc USING statolde count.
000135 ENDIF.
000136
000137 IF docnums IS REQUESTED.
000138 REFRESH docnums.
000139 LOOP AT i_edidc.
000140 MOVE i_edidc-docnum TO docnums. APPEND docnums.
000141 ENDLOOP.
000142 ENDIF.
000143 ENDFUNCTION.

```

16.1.7 Access on EDIDC

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	31.296	1.530.344.590	33.705.564	1.530.568.499	0

```

SELECT
"MANDT","DOCNUM","STATUS","UPDDAT","UPDTIM"
FROM
"EDIDC"WHERE "MANDT"=:A0 AND "UPDDAT">:A1 AND "DIRECT"=:A2 AND "STATUS" IN
(:A3,:A4,:A5,:A6,:A7,:A8,:A9,:A10) AND "MESTYP" IN (:A11,:A12,:A13)
Execution Plan From: V$SQL_PLAN sql_id: 8g8jr7dzrnffn
SELECT STATEMENT Estimated Costs= 7,323 Estimated Rows= 0
Optimizer: ALL_ROWS
1 TABLE ACCESS FULL EDIDC
Estimated Costs= 7,323 Estimated Rows= 43,773
Filter predicates:

```

```

("UPDDAT">:A1 AND "DIRECT"=:A2 AND "MANDT"=:A0 AND INTERNAL_FUNCTION("STATU
S") AND INTERNAL_FUNCTION("MESTYP"))
Estim. Bytes: 2,144,877
Estim. CPU-Costs = 2,335,495,862 Estim. IO-Costs = 7,229

```

Program Name	Line	Created By	Last Changed By	Last Changed On
LBDMONU15	96	SAP	SAP	03.06.2015

```

000084 IF time = '00000000'.
000085 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000086 OF TABLE i_edidc WHERE
000087 mandt = mandt AND
000088 direct = 1 AND
000089 status IN statusss AND
000090 rcvprt IN party AND
000091 rcvprn IN parnum AND
000092 rcvpfc IN parfct AND
000093 mestyp IN mestypa.
000094
000095 ELSE.
000096 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000097 OF TABLE i_edidc WHERE
000098 mandt = mandt AND
000099 upddat > time AND
000100 direct = 1 AND
000101 status IN statusss AND
000102 rcvprt IN party AND
000103 rcvprn IN parnum AND
000104 rcvpfc IN parfct AND
000105 mestyp IN mestypa.
000106 ENDIF.
000107 PERFORM check_statold TABLES i_edidc USING statolda count.
000108
000109 ELSE.
000110 * Inbound
000111 IF time = '00000000'.
000112 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000113 OF TABLE i_edidc WHERE
000114 mandt = mandt AND
000115 direct = 2 AND
000116 status IN statusss AND
000117 sndprt IN party AND

```

16.1.8 Access on EDIDC

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	31.296	1.530.344.590	33.339.484	1.530.568.400	0

```

SELECT
"MANDT", "DOCNUM", "STATUS", "UPDDAT", "UPDTIM"
FROM
"EDIDC" WHERE "MANDT"=:A0 AND "UPDDAT">:A1 AND "DIRECT"=:A2 AND "STATUS" IN
(:A3,:A4,:A5,:A6,:A7,:A8,:A9,:A10,:A11,:A12) AND "MESTYP" IN (:A13,:A14,:A15)
Execution Plan From: V$SQL_PLAN sql_id: 3nnst1tk6krka

```

SELECT STATEMENT Estimated Costs= 7,323 Estimated Rows= 0
 Optimizer: ALL_ROWS
 1 TABLE ACCESS FULL EDIDC
 Estimated Costs= 7,323 Estimated Rows= 43,773
 Filter predicates:
 ("UPDDAT">:A1 AND "DIRECT"=:A2 AND "MANDT"=:A0 AND INTERNAL_FUNCTION("STATUS") AND INTERNAL_FUNCTION("MESTYP"))
 Estim. Bytes: 2,144,877
 Estim. CPU-Costs = 2,335,638,192 Estim. IO-Costs = 7,229

Program Name	Line	Created By	Last Changed By	Last Changed On
LBDMONU15	96	SAP	SAP	03.06.2015

```

000084 IF time = '00000000'.
000085 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000086 OF TABLE i_edidc WHERE
000087 mandt = mandt AND
000088 direct = 1 AND
000089 status IN statusss AND
000090 rcvprt IN party AND
000091 rcvprn IN parnum AND
000092 rcvpfc IN parfct AND
000093 mestyp IN mestypa.
000094
000095 ELSE.
000096 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000097 OF TABLE i_edidc WHERE
000098 mandt = mandt AND
000099 upddat > time AND
000100 direct = 1 AND
000101 status IN statusss AND
000102 rcvprt IN party AND
000103 rcvprn IN parnum AND
000104 rcvpfc IN parfct AND
000105 mestyp IN mestypa.
000106 ENDIF.
000107 PERFORM check_statold TABLES i_edidc USING statolda count.
000108
000109 ELSE.
000110 * Inbound
000111 IF time = '00000000'.
000112 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000113 OF TABLE i_edidc WHERE
000114 mandt = mandt AND
000115 direct = 2 AND
000116 status IN statusss AND
000117 sndprt IN party AND
  
```

16.1.9 Access on RSMONMESS

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	5.562.333	4.746.151	31.828.567	89.804.417	479.880.819

```

SELECT
*
FROM
"RSMONMESS"
WHERE
"RNR"=:A0
Execution Plan From: V$SQL_PLAN sql_id: 73sbgbnmfawf7
SELECT STATEMENT Estimated Costs= 27 Estimated Rows= 0
Optimizer: ALL_ROWS
2 TABLE ACCESS BY INDEX ROWID RSMONMESS
Estimated Costs= 27 Estimated Rows= 82
Estim. Bytes: 10,250
Estim. CPU-Costs = 251,919 Estim. IO-Costs = 27
1 INDEX RANGE SCAN RSMONMESS~AU1
Estimated Costs= 4 Estimated Rows= 82
Access predicates: "RNR"=:A0
Search Columns: 1
Estim. CPU-Costs = 45,286 Estim. IO-Costs = 4

```

Program Name	Line	Created By	Last Changed By	Last Changed On
LRSSM_LOADU10	52	SAP	SAP	15.12.2016

```

000040 if i_t_where[] is initial and i_use_sl_tabs is initial.
000041 message x000.
000042 endif.
000043 endif.
000044
000045 clear e_s_rsmonmess.
000046 refresh e_t_rsmonmess.
000047
000048 if not l_rnr is initial.
000049 if i_single_select is initial.
000050 if i_second_connection = space.
000051 if i_dpnr is initial.
000052 select * from rsmonmess into table e_t_rsmonmess where
000053 rnr = l_rnr.
000054 else.
000055 select * from rsmonmess into table e_t_rsmonmess where
000056 rnr = l_rnr and
000057 dp_nr = i_dpnr.
000058 endif.
000059 else.
000060 if i_dpnr is initial.
000061 select * from rsmonmess
000062 CONNECTION (i_SECOND_CONNECTION)
000063 into table e_t_rsmonmess where
000064 rnr = l_rnr.
000065 else.

```

16.1.10 Access on EDIDC

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	15.648	765.172.231	17.257.878	765.284.173	0

```

SELECT
"MANDT","DOCNUM","STATUS","UPDDAT","UPDTIM"
FROM
"EDIDC"WHERE "MANDT"=:A0 AND "UPDDAT">:A1 AND "DIRECT"=:A2 AND "STATUS" IN
(:A3,:A4,:A5,:A6,:A7)
Execution Plan From: V$SQL_PLAN sql_id: 3zb3w8fqr97qc
SELECT STATEMENT Estimated Costs= 7,322 Estimated Rows= 0
Optimizer: ALL_ROWS
1 TABLE ACCESS FULL EDIDC
Estimated Costs= 7,322 Estimated Rows= 43,773
Filter predicates:
("UPDDAT">:A1 AND "DIRECT"=:A2 AND "MANDT"=:A0 AND INTERNAL_FUNCTION("STATUS"))
Estim. Bytes: 1,838,466
Estim. CPU-Costs = 2,330,266,881 Estim. IO-Costs = 7,229

```

Program Name	Line	Created By	Last Changed By	Last Changed On
LBDMONU15	96	SAP	SAP	03.06.2015

```

000084 IF time = '00000000'.
000085 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000086 OF TABLE i_edidc WHERE
000087 mandt = mandt AND
000088 direct = 1 AND
000089 status IN statusss AND
000090 rcvprt IN party AND
000091 rcvprn IN parnum AND
000092 rcvpfc IN parfct AND
000093 mestyp IN mestypa.
000094
000095 ELSE.
000096 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000097 OF TABLE i_edidc WHERE
000098 mandt = mandt AND
000099 upddat > time AND
000100 direct = 1 AND
000101 status IN statusss AND
000102 rcvprt IN party AND
000103 rcvprn IN parnum AND
000104 rcvpfc IN parfct AND
000105 mestyp IN mestypa.
000106 ENDIF.
000107 PERFORM check_statold TABLES i_edidc USING statolda count.
000108
000109 ELSE.
000110 * Inbound
000111 IF time = '00000000'.
000112 SELECT * FROM edidc CLIENT SPECIFIED INTO CORRESPONDING FIELDS
000113 OF TABLE i_edidc WHERE
000114 mandt = mandt AND
000115 direct = 2 AND
000116 status IN statusss AND
000117 sndprt IN party AND

```

16.2 Historical Analysis Between 30.12.2019 05.01.2020

Expensive Statements Overview

Object Name	CPU Load [%]	I/O Load [%]	Elapsed Time [%]	Total Executions	Records Processed
BEGINDBMS_STATS.GATH	1,19	0,03	5,00	64	64
V\$FILESTAT	0,00	0,00	3,00	1.883	142.069
DECLARELBRECDDBMS_RCV	0,00	0,00	3,00	21	0

16.2.1 Access on BEGINDBMS_STATS.GATH

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	64	256.143	2.204.831	19.952.140	64

```
BEGIN DBMS_STATS.GATHER_TABLE_STATS (OWNNAME => :o, TABNAME => :t,  
ESTIMATE_PERCENT => :e, METHOD_OPT => :m, DEGREE => NULL, GRANULARITY =>  
'ALL', CASCADE => TRUE, NO_INVALIDATE => FALSE); END;
```

SQL Scripts

This statement is an expensive SQL script. Because the contents of such a script are not visible in the SQL cache, we cannot analyze this statement in detail.

Recommendation: Check if:

- The script has to be run at all.
- The script can be run less frequently.
- The script can be tuned so that it consumes less database resources.

16.2.2 Access on V\$FILESTAT

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	1.883	0	1.489.002	0	142.069

```
SELECT  
name,phyrds,pd.phys_reads,phywrts,pd.phys_wrts  
FROM(SELECT (SUM(phyrds)) phys_reads, (SUM(phywrts)) phys_wrts  
FROM  
v$filestat) pd, v$datafile df, v$filestat fs  
WHERE  
df.file# = fs.file#
```

16.2.3 Access on DECLARELBRECDDBMS_RCV

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	21	3	1.181.093	316	0

```
declare lbRec dbms_rcvman.lbRec_t; lbCursor dbms_rcvman.lbCursor_t; first
boolean := FALSE; ret boolean; begin if (:first > 0) then first := TRUE; end
if; <<next_row>> ret := dbms_rcvman.listBackup( lbRecOut =>lbRec, firstCall
=> first, only_obsolete => TRUE, redundancy => :redundancy, piped_call =>
FALSE, lbCursor => lbCursor, lbState => dbms_rcvman.lbStatePck, extRlKeepSCN
=> NULL); if (not ret) then raise no_data_found;elsif (lbRec.pkey is not null
and lbRec.is_rdf = 'YES') then :backup_type := lbRec.backup_type; :file_type
:= lbRec.file_type; :key := lbRec.pkey; else first := FALSE; goto next_row;
end if; end;
```

SQL Scripts

This statement is an expensive SQL script. Because the contents of such a script are not visible in the SQL cache, we cannot analyze this statement in detail.

Recommendation: Check if:

- The script has to be run at all.
- The script can be run less frequently.
- The script can be tuned so that it consumes less database resources.

17 Trend Analysis

This section contains the trend analysis for key performance indicators (KPIs). Diagrams are built weekly once the EarlyWatch Alert service is activated.

In this section, a "week" is from Monday to Sunday. The date displayed is the Sunday of the week.

17.1 System Activity

The following diagrams show the system activity over time.

The "Transaction Activity" diagram below depicts transaction activity in the system over time.

- **Total Activity:** Transaction steps performed each week (in thousands)
 - **Dialog Activity:** Transaction steps performed in dialog task each week (in thousands)
 - **Peak Activity:** Transaction steps (in thousands) during the peak hour; this peak hour is calculated as the hour with the maximum dialog activity in the ST03 time profile divided by 5 working days per week.
- (Peak Activity is absent if "Activity Data" is taken from ST03 data directly).

The "User Activity" diagram below shows the user activity on the system over time.

- **Total Users:** Total users that logged on in one week.
- **Active Users:** Users who performed more than 400 transaction steps in one week.

17.2 System Operation

The following diagram or table shows important KPIs for system operation.

17.3 Hardware Capacity

Report time frame: Service data was collected starting at 06.01.2020 04:50:59. This took 10 minutes. You can see sample SAP EarlyWatch Alert reports on SAP Support Portal at [SAP EarlyWatch Alert](#) -> Sample Reports.
For general information about SAP EarlyWatch Alert, see [SAP Note 1257308](#).

About System And Solution Manager

System No. Of Target System	310618480
Solution Manager System	SMP
Solution Manager Version	SOLUTION MANAGER 7.2
Service Tool	720 SP16